ELECTRICAL SUPPLIES
- AND -
APPARATUS

"MINE & SMELTER"
MARCY MILLS
MECHANICAL · ELECTRICAL · CHEMICAL

CATALOG № 96

The Mine & Smelter Supply Co.

1822-19 [illegible]

DENVER - SALT LAKE CITY - EL PASO
NEW YORK

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Catalog No. 96

Electrical Supplies and Apparatus

For

Electrical Contractors,
Industrials, Railroads,
Utilities, Municipalities,
The Mining Industry

●

The Mine and Smelter Supply Company

ESTABLISHED 1895

Agent-Jobbers
Westinghouse Electric and Manufacturing Company

17th and Blake, Denver, Colorado

410-412 San Francisco
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1775 Broadway
New York

121 W. Second South
Salt Lake City

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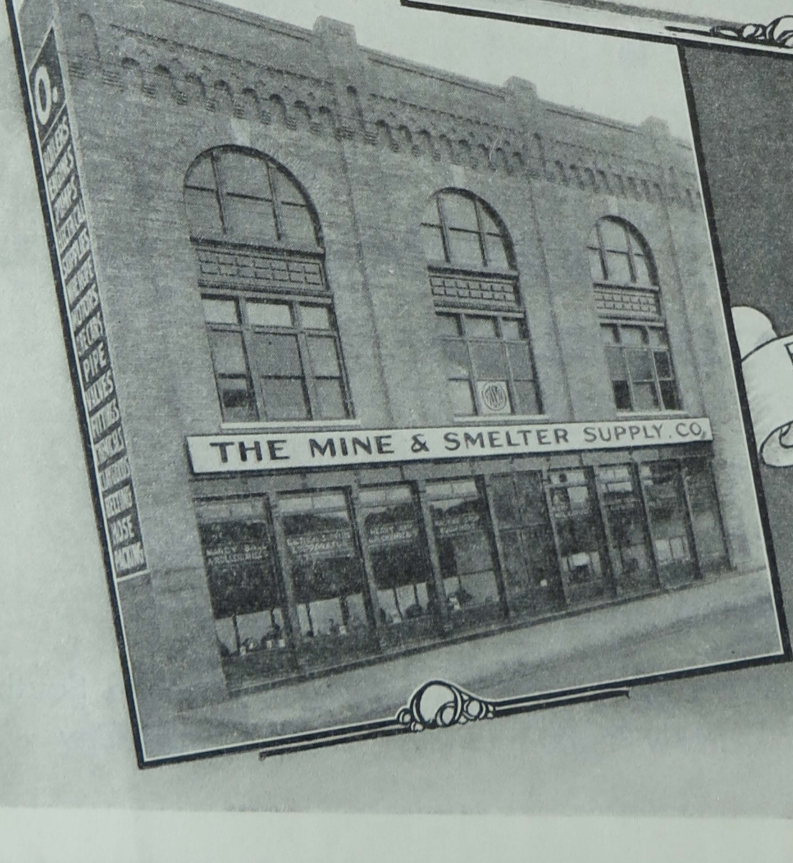
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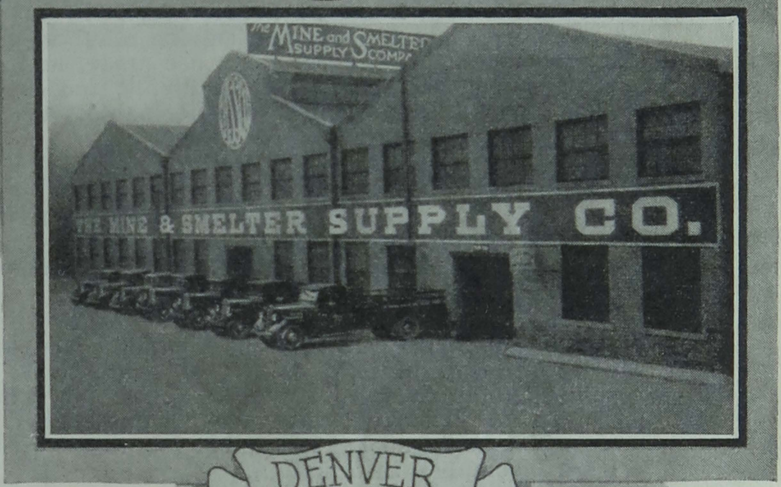
The MINE and SMELTER SUPPLY COMPANY
THE MINE & SMELTER SUPPLY CO.

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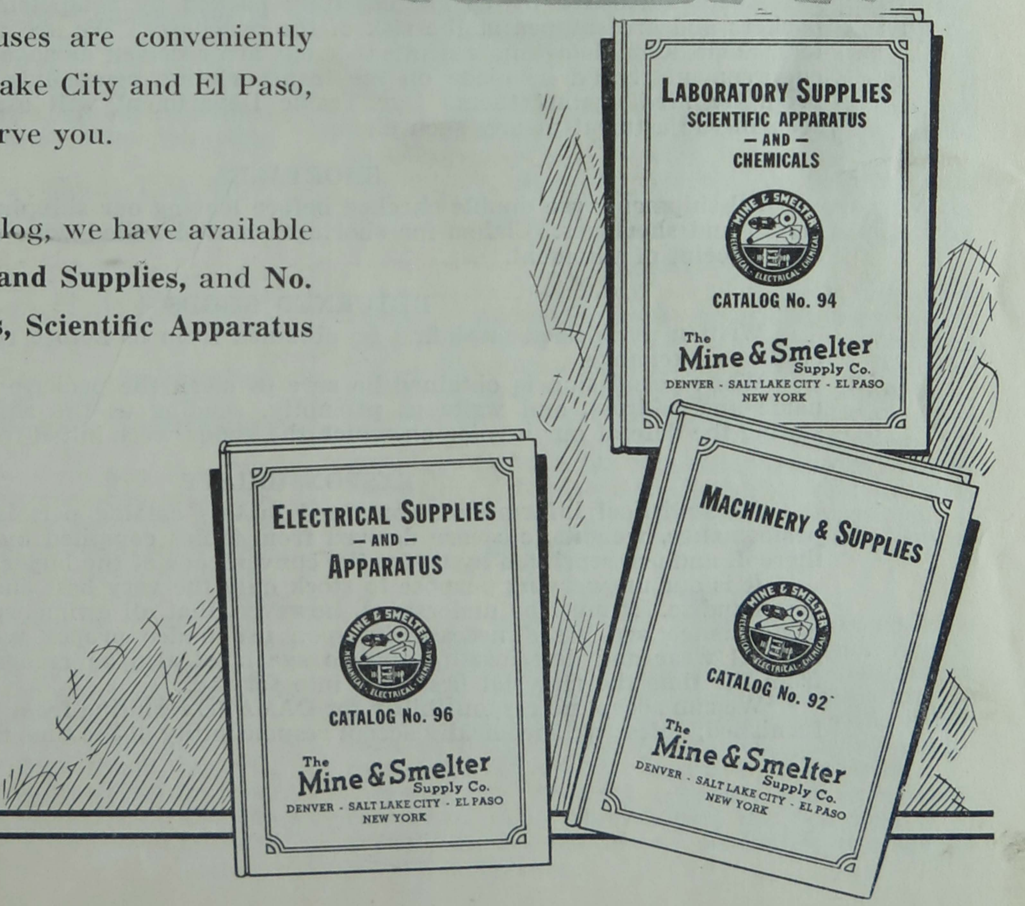
* * *

Our stores and warehouses are conveniently located at Denver, Salt Lake City and El Paso, so that we may better serve you.

In addition to this catalog, we have available our **No. 92—Machinery and Supplies,** and **No. 94—Laboratory Supplies, Scientific Apparatus and Chemicals.**


LABORATORY SUPPLIES
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CHEMICALS
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ELECTRICAL SUPPLIES
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The Mine & Smelter Supply Co.
DENVER - SALT LAKE CITY - EL PASO
NEW YORK

General Information

In compiling this catalog we have endeavored to make it an up-to-date reference book of standard electrical supplies and apparatus. Owing to the large number of items shown, it is impossible to give full illustrations and descriptions. But we have special catalogs or bulletins on most of the items listed herein which will be furnished gladly upon request.

All quotations, contracts and sales made by us are subject to the following terms:

PRICES

The list prices shown in this catalog are those in effect at the time of issue, but are subject to change without notice. Quotations, unless otherwise stated, are for immediate acceptance. It is our policy to sell always at the lowest prices consistent with quality and efficient service.

Stenographical and clerical errors are subject to correction.

ORDERS

When ordering by telegram, please give catalog number — if shown, page reference, together with brief description. Cable address: "Minterply." Codes used: Western Union, Bentley's Bedford McNeill.

Mail orders should state catalog number, page references and full description to avoid delay. All agreements are made, and orders accepted, subject to contingencies such as strikes, fires, accidents, and causes beyond our control.

Orders placed with us are not subject to cancellation without first obtaining our written consent.

GUARANTEE

Defective goods furnished by us will be replaced f.o.b. factory. We will not be responsible for any damages or expenses occasioned by defective goods, and our liability in all cases is limited to the value of the goods furnished.

ROUTING INSTRUCTIONS

Full shipping instructions should accompany all orders. Buyers located off transportation lines should specify to what points goods are to be shipped, by what routing, and to what post office invoices and shipping papers should be mailed.

In the absence of shipping instructions, it is understood that we are to use our own judgment and are not liable for any excess shipping charges that may result from incomplete information.

LOSS AND DAMAGE IN TRANSIT

Goods furnished by us are carefully packed by competent and experienced packers and are shipped at the risk of the purchaser. We are not responsible for loss, damage, or delays in transit. If goods are received damaged or in bad order, endorsement should be made on the transportation company's receipt and claim promptly filed against them. Our Traffic Department will assist you gladly in securing adjustment of any such claims.

SHORTAGES

All shipments are double checked before leaving our shipping room to prevent errors and shortages. Claims for shortages must be filed with us within 10 days after receipt of shipment.

RETURNED GOODS

Written permission must first be obtained from us before returning goods for credit or exchange.

When permission is obtained be sure to mark the package clearly with your name and address, and write us promptly, sending us the shipping receipt and stating the date of our invoice on which the goods were billed to you.

RESPONSIBILITY

All statistical information contained in this catalog pertaining to capacities, performance, weights, etc., are derived from tables compiled by the manufacturer thereof, and are reprinted by us for the convenience of the buyer.

It is our unswerving purpose to stock only the very best and most dependable merchandise. It must be understood, however, that all estimates of capacities and performance are based necessarily upon use under proper working conditions. Normal wear and deterioration due to age must also be recognized as operative from the time the material first goes into service.

We can accept no responsibility for DAMAGE resulting from failure of products furnished, unless we specifically accept responsibility at the time the order is placed.

ANACONDA WIRES AND CABLES

Coordination and supervision by a single organization, brings Anaconda wire and cable within the rigid Anaconda standards and assures uniform quality in stock or made to specification products.

BUILDING WIRE

Anaconda Building Wire and Cable is listed by the Underwriters' Laboratories, Inc., under their Reexamination Service Procedure. It is marked every foot with type designation, size and voltage rating, for easy identification. Its superiority is proven by the tests it must pass.

A few advantages of Anaconda Building Wire:

1. Lubricated surface permits wire to be pulled easily through ducts.
2. Surface will not carry or support a flame.
3. Highly moisture-resistant.
4. Tougher, more closely woven cotton braids prevent cracking and give greater mechanical protection.
5. Colors are firmly secured and fadeless.
6. A lasting and efficient job for the owner.
7. Marked for easy identification.

SMALL DIAMETER WIRE

By decreasing the outside diameter of the conductors, through the use of thinner walls of higher grade insulations, you are permitted to pull out the old wires in existing raceways and pull in either more wires of the same size or the same number of wires of larger copper size, permitting a greater flow of current with less voltage loss.

ANW WIRE AND CABLE

Anaconda Type RW (ANW) moisture resisting wires and cables are free-stripping and long-aging and are approved for use in moist locations as defined in the National Electric Code, Article 300, Section 3055, if installed in following locations:

(a) Underground
(b) In concrete slabs, or other masonry in direct contact with earth
(c) In permanently moist locations
(d) Where condensation and accumulation of moisture within the raceway is likely to occur

STANDARD COMPOUNDS

Anaconda wires and cables can be furnished with rubber insulation according to the following building wire specifications:

1. N. E. Code (NEMA Code Grade Type R)—(50° C., 122° F.)
2. Performance, Type RP (Formerly 30%)—(60° C., 140° F.)
3. Heat-resistant, Type RH—(75° C., 167° F.)
4. ANW for moist locations, Type RW—(50° C., 122° F.)
5. Duracode—(70° C., 158° F.)
6. Federal Specification Board — Specification JC-101B—(50° C., 122° F.)
7. Federal Specification Board — Specification JC-106A—(75° C., 167° F.)

TYPE ACR COMPOUND—Over 600 Volts

Type ACR is a high grade, Anaconda ozone-resistant insulation, especially designed for use in lighting and power cables operating at high voltages. This long-aging compound retains its physical and electrical properties under severe service conditions, and may be operated at a maximum permissible copper temperature of 70° C. This insulation is recommended for cables operating at voltages exceeding the limits for which other types of rubber insulation are guaranteed.

TYPE AHR RUBBER—Over 600 Volts

Type AHR insulation is a high grade, heat-resisting, long-life rubber insulation made to Anaconda specifications. This power and control cable insulation can be operated at a maximum permissible copper temperature of 75° C.

TYPE AMR RUBBER—Over 600 Volts

Type AMR is a high grade, heat-resisting, long-aging and low moisture absorption rubber insulation, made to special Anaconda specifications. This insulation is suitable for power and control cables operating at a maximum permissible copper temperature of 75° C.

TYPE AOR COMPOUND

Type AOR insulation has been developed to meet special operating conditions for which the ordinary types of rubber jacket or insulation are not suitable. Type AOR insulation is characterized primarily by its resistance to oil, acid, alkali, some chemicals, oxidation, sunlight and ozone. The maximum permissible copper temperature of Type AOR insulation is limited to 60° C. It is suitable for use in circuits operating at not more than 600 volts; also suitable as a jacket material on cables operating at higher voltages.

DURACODE

The universal rubber compound for heavy duty service. Duracode is recommended as a solution to the general problem facing the larger industrial for his regular requirements. Some of its advantages are:

1. The insulation without the protective covering is flame retarding in that it will meet the Underwriters' flame test.
2. Superior aging characteristics indicating longer life.
3. Can be operated at a copper temperature of 70° C. (158° F.)
4. High current rating due to higher copper temperature.
5. Same diameters and workability of cables as other types of building wire.

Duracode insulation can be adapted to all types of wire and cable construction: braided, leaded, rubber jacketed, single or multiple conductor, etc.

Duracode Insulated Cables are recommended for single and multiple conductor power and control cables operating at a maximum temperature of 70° C. (158° F.) and such cables may be installed in the usual manner in: ducts or conduits, aerial suspensions, or open wiring.

They are especially adapted for building wire and industrial wiring, and are approved by the Underwriters' Laboratories for such installations.

DURASHEATH

Anaconda Durasheath is a high grade vulcanized rubber compound, suitable as insulation for cables operating at low voltage, or as a jacket material on high grade cables. Durasheath insulation possesses excellent electrical characteristics in addition to the desirable properties afforded by a high grade rubber jacket compound. As an insulation, the maximum permissible copper temperature is limited to 60° C. It is suitable for use in circuits operating at not more than 600 volts. Durasheath is also recommended for use as a jacket on cables operating at higher voltages.

SUNEX-SECURITYFLEX

This is a smooth, black, tough, abrasion-resisting jacket made from 60% rubber compound. Sunex-Securityflex jacket is the same material which Anaconda furnishes on the standard line of Securityflex portable cables for heavy duty use, such as dredges, electric shovels, mining equipment, etc. This jacket requires no covering.

Because of constant research and experiment carried on at its laboratories, the Company is in a position to cooperate in producing any special rubber compound.

1940 Edition of the National Electrical Code — Conductor Insulations — 600 Volts

Trade Name	Type Letter	Maximum Operating Temperature	Insulation	Thickness of Insulation	Outer Covering	Use
Code	R	50C (122F)	Code Grade Rubber	14-10........3/64 8-2..........4/64 1-4/0........5/64 250-500......6/64 501-1000.....7/64 Over 1000....8/64	Moisture-Resistant Flame-Retardant Fibrous Covering	General Use
Moisture-Resistant	RW	50C (122F)	Moisture-Resistant Rubber	Same as Type R	Moisture-Resistant Flame-Retardant Fibrous Covering	General Use or in Wet Locations. See Section 3035
Performance	RP	60C (140F)	Performance Grade Rubber	Same as Type R	Moisture-Resistant Flame-Retardant Fibrous Covering	General Use
Heat-Resistant	RH	75C (167F)	Heat-Resistant Grade Rubber	Same as Type R	Moisture-Resistant Flame-Retardant Fibrous Covering	General Use
Small Diameter Building Wire (Heat-Resistant)	RHT	75C (167F)	Heat-Resistant Grade Rubber	14-10........2/64 8...........3/64	Moisture-Resistant Flame-Retardant Fibrous Covering	General Use See 3005-d
Small Diameter Building Wire (Performance)	RPT	60C (140F)	Performance Grade Rubber	14-10........2/64	Moisture-Resistant Flame-Retardant Fibrous Covering	Rewiring Existing Raceways See 3005-e
Type RU Wire	RU	60C (140F)	90 Per Cent Unmilled Grainless Rubber	14-10.....18 Mils	Moisture-Resistant Flame-Retardant Fibrous Covering	Rewiring Existing Raceways See 3005-e
Solid Synthetic	SN	60C (140F)	Solid Flame-Retardant Moisture-Resistant Synthetic Compound	14-10........2/64 8...........3/64 6-2.........4/64 1-4/0.......5/64	None	Rewiring Existing Raceways See 3005-e
Asbestos Synthetic	SNA	90C (194F)	Synthetic and Felted Asbestos	14-8............. Synthetic..20 Mils Asbestos...20 Mils	Cotton Braid Thickness, 20 Mils	Switchboard Wiring
Varnished Cambric	V	85C (185F)	Varnished Cambric	Same as Type R Except 8............3/64	Fibrous Covering or Lead Sheath	Dry Locations Only, Unless Lead Sheathed. Smaller than No. 6 by Special permission.
Asbestos Varnished Cambric	AVA	110C (230F)	Impregnated Asbestos and Varnished Cambric	See Table	Asbestos Braid	General Use Dry Locations
Asbestos Varnished Cambric	AVB	90C (194F)	Same as Type AVA	See Table	Flame-Retardant Cotton Braid	General Use Dry Locations
Asbestos Varnished Cambric	AVL	110C (230F)	Same as Type AVA	See Table	Lead Sheath	General Use Wet Locations
Asbestos	A	200C (392F)	Felted Asbestos	14-8......40 Mils 6-2.......60 Mils 1-4/0.....90 Mils 250-1000 .120 Mils	With or Without Asbestos Braid	Dry Locations Only. Not for General Conduit Installation. In Raceways, only as Leads to or within apparatus. If without Braid or Moisture-resistantTreatment. Limited to 300 Volts.
Impregnated Asbestos	AI	125C (257F)	Impregnated Felted Asbestos	Same as Type A	With or Without Impregnated Asbestos Braid	
Paper		85C (185F)	Paper		Lead Sheath	As Permitted by 2304-b, or by Special Permission.
Slow Burning	SB	90C (194F)	3 Braids Impregnated Fire-Retardant Thread	Same as Type V	Outer Cover Finished Smooth and Hard	For Use Only in Dry Locations Where the Room Temperature Exceeds 85C (185F).
Slow Burning Weatherproof	SBW	90C (194F)	2 Layers Impregnated Cotton Thread	Same as Type V	Outer Fire-Retardant Coating	For Use Only in Dry Locations Where the Room Temperature Exceeds 85C (185F).
Weatherproof	WP	80C (176F)	At Least Three Cotton Braids Impregnated	14-12........3/64 10-2.........4/64 1-4/0........5/64 225-500......6/64 525-950......7/64 1000 and over.8/64		May be used for Interior Wiring Only by Special Permission.

ANACONDA WIRE AND CABLE
RUBBER-INSULATED BRAID-COVERED WIRE AND CABLE
Type R—600 Volts

-ANACONDA 14 600V TYPE R-

For use in open wiring between walls and ceilings of residential occupancies, concealed knob and tube work, flexible steel or rigid conduit wiring or in metal raceways in all types of buildings or occupancies in accordance with National Board of Fire Underwriters' regulations or municipality requirements. Furnished with Code, Type R; Performance, Type RP; Heat-resisting, Type RH; and Type RW, for moist locations; Duracode or special rubber compound. Regularly furnished in black, white, red, blue, green and yellow colors for quick testing and identification. Other colors at slight additional price.

Marked every foot with size, voltage and type, for ready identification and easy measuring.

Solid Single Braid

Size A.W.G.	Dia. of Wire	Thickness Rubber Inches	Approx. Diam. Overall Inches	Lgth. Per Coil	Standard Packing	Approx. Shpg.Wt. Std.Pkg.
14	.064	3/64	.190	500′	2500′ Crtn.**	70
12	.081	3/64	.210	500′	2500′ Sack**	100
10	.102	3/64	.230	500′	1000′ Crtn.	60
8	.128	4/64	.280	500′	500′ Coil	40
6*	.162	4/64	.320	500′	500′ Coil	60

*Not listed by Underwriters.

**Also available in individual 500-ft. coils in cartons.

Solid Double Braid

Same as above except furnished with double braid or one tape and one braid.

Size A.W.G.	Dia. of Wire	Thickness Rubber Inches	Approx. Diam. Overall Inches	Lgth. Per Coil	Standard Packing	Approx. Shpg.Wt. Std.Pkg.
14	.064	3/64	.220	500′	2500′ Sack	85
12	.081	3/64	.240	500′	2500′ Sack	120
10	.102	3/64	.260	500′	2500′ Sack	152
8	.128	4/64	.320	500′	500′ Coil	46
6	.162	4/64	.360	500′	500′ Coil	70

RUBBER-INSULATED AND BRAID-COVERED STRANDED CABLE
Type R—600 Volts

-ANACONDA 14 600V TYPE R-

Stranded conductors are used for the same classes of wiring as solid, being preferred for their additional flexibility and greater ease of handling in confined or cramped places or where there are sharp bends in conduits or raceways into which wire is pulled. Larger sizes are used for electric lighting mains, street railway feeders and power transmission lines. Furnished with Code, Type R; Performance, Type RP; Heat-resisting, Type RH; and Type RW for moist locations; Duracode or special rubber compound. Regularly furnished in black, white or red colors for quick identification. Other colors at slight additional price.

Marked every foot with size, voltage and type, for ready identification and easy measuring.

Stranded Single Braid

Size A.W.G.	No. and Dia. of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Lgth. Per Coil	Std. Packing	Approx. Shpg.Wt. Std.Pkg.
14	7x.0242	3/64	.200	500′	2500′	84
12	7x.0305	3/64	.220	500′	2500′	105
10	7x.0385	3/64	.250	500′	2500′	140
8	7x.0486	4/64	.310	500′	500′	45
6*	7x.0612	4/64	.350	500′	500′	65

*Not listed by Underwriters.

ANACONDA WIRE AND CABLE
RUBBER-INSULATED AND BRAID-COVERED STRANDED CABLE
Type R—600 Volts (Continued)

Stranded Double Braid

Size A.W.G. or CM	No. and Dia. of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Standard Packing	Approx. Shpg.Wt. Std.Pkg.
14	7x.0242	3/64	.235	2500′ Sack	92
12	7x.0305	3/64	.260	2500′ Sack	115
10	7x.0385	3/64	.285	2500′ Sack	160
8	7x.0486	4/64	.350	500′ Coil	48
6*	7x.0612	4/64	.380	500′ Coil	70
4	7x.0772	4/64	.440	500′ Coil	103
3	7x.0867	4/64	.465	500′ Coil	122
2	7x.0974	4/64	.500	500′ Coil	147
1	19x.0664	5/64	.570	30x12x16	465
1/0	19x.0745	5/64	.610	36x12x16	560
2/0	19x.0837	5/64	.660	36x12x16	660
3/0	19x.0940	5/64	.710	36x12x16	780
4/0	19x.1055	5/64	.770	36x12x16	930
250M	37x.0822	6/64	.845	42x24x24	1180
300M	37x.0900	6/64	.920	42x24x24	1365
350M	37x.0973	6/64	.970	42x24x24	1540
400M	37x.1040	6/64	1.020	42x24x24	1705
500M	37x.1162	6/64	1.100	42x24x24	2145
600M	61x.0992	7/64	1.210	42x24x24	1315
700M	61x.1071	7/64	1.290	42x24x24	1480
750M	61x.1109	7/64	1.320	42x24x24	1565
800M	61x.1145	7/64	1.355	42x24x24	1650
900M	61x.1215	7/64	1.420	42x24x24	1780
1000M	61x.1280	7/64	1.480	42x24x24	1980
1250M	91x.1172	8/64	1.645	48x24x24	2930
1500M	91x.1284	8/64	1.760	48x24x24	3344
1750M	127x.1174	8/64	1.900	54x32x32	4120
2000M	127x.1255	8/64	1.980	54x32x32	4534

*Double braid or tape and braid at manufacturers option on No. 6 or larger.

Standard Lengths—Sizes: 14 to 2, 500-foot coil; 1 to 500M c.m., 1000-foot reel; 600M c.m. to 2000M c.m., 500-foot reel.

DUPLEX BRAID—COVERED CABLE
Type RD—600 Volts

-ANACONDA 14
-ANACONDA 14
ANACONDA

For use in accordance with National Board of Fire Underwriters' regulations for wiring interior circuits in rigid conduit or metal moldings. Made of two solid or stranded, soft, tinned copper conductors, each insulated with Code, Type R; Performance, Type RP; Heat-resisting, Type RH; and Type RW for moist locations; Duracode or special rubber compound, and covered with a saturated braid, one black and one white for polarity. The two conductors are laid parallel and then covered with a closely woven braid, thoroughly saturated and finished with a moisture- and weather-resisting compound.

Solid

Size A.W.G.	No. and Dia. of Strands	Thickness Rubber, Inches	Approx. Dia. Overall Inches	Lgth. on Spool or Coil	Approx. Shpg.Wt. Std.Pkg.
14	.064	3/64	.220x.410	500′	34
12	.081	3/64	.240x.445	500′	47
10	.102	3/64	.370x.495	500′	60
8	.128	4/64	.335x.625	500′	92
6	.162	4/64	.360x.670	500′	130
Stranded					
14	7x.0242	3/64	.230x.430	500′	37
12	7x.0305	3/64	.260x.475	500′	48
10	7x.0385	3/64	.290x.535	500′	65
8	7x.0486	4/64	.350x.655	500′	100
6	7x.0612	4/64	.380x.720	500′	139

ANACONDA SMALL DIAMETER BUILDING WIRE

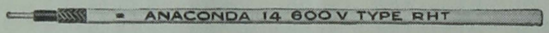
TYPE SN—600 VOLTS, 60°C.

ANACONDA 14 600 V TYPE SN

Densheath small-diameter building wire is offered for use in rewiring of existing raceways to meet the requirements of the National Electrical Code (1940). Its smaller diameter makes it possible to add additional or larger capacity circuits in existing conduits or raceways.

Size	Insulation Inches	Approx. O.D. Inches	Approx. Net Wt. Per 1000 Ft.
14 Solid	2/64	.130	20
12 Solid	2/64	.147	28
10 Solid	2/64	.168	41
8 Solid	3/64	.227	69
8 Stranded	3/64	.246	75
6 Stranded	4/64	.314	119
4 Stranded	4/64	.363	176
2 Stranded	4/64	.423	263
1 Stranded	5/64	.496	339
1/0 Stranded	5/64	.537	416
2/0 Stranded	5/64	.582	514
3/0 Stranded	5/64	.634	633
4/0 Stranded	5/64	.692	787

TYPE RHT—600 VOLTS, 75° C.



Type RHT differs from Type SN in that it may be used for both rewiring of existing buildings or for wiring new buildings and formerly unwired buildings. Regularly furnished in the following colors: Black, white, red, blue, green, yellow.

	Single Braid			Double Braid		
Size	Rubber Wall Inches	Approx. O.D. Inches	Approx. Net Wt. Per 1000 Ft.	Rubber Wall Inches	Approx. O.D. In.	Approx. Net Wt. Per 1000 Ft.
Solid						
14	2/64	.16	21	2/64	.19	24
12	2/64	.18	28	2/64	.21	31
10	2/64	.20	40	2/64	.23	45
8	3/64	.25	70	3/64	.29	75
Stranded						
14	2/64	.16	22	2/64	.20	25
12	2/64	.18	29	2/64	.22	33
10	2/64	.20	42	2/64	.24	47
8	3/64	.27	72	3/64	.30	80

RUBBER-COVERED FIXTURE WIRE

Type RF—300 Volts

Type RF fixture wire is made of solid or stranded, soft, tinned copper conductor, insulated with Code, Duracode or special rubber compound, and covered with a braid thoroughly saturated and finished with a moisture- and weather-resisting compound. Black, white, or colors.

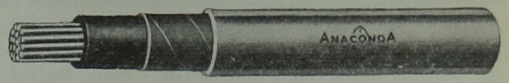
				Standard Packing		
Size A.W.G.	No. and Dia. of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Lgth. on Spool or Coil	No. of Spools	Approx. Shpg. Wt. Lbs.
Solid						
18	.040	1/64	.100	1000′	4	41
18	.040	1/32	.130	500′	4	28
16*	.051	1/64	.110	500′	4	30
16	.051	1/32	.140	500′	4	38
Stranded						
18	7x.0153	1/64	.110	1000′	4	41
18	7x.0153	1/32	.140	500′	4	28
16*	7x.0192	1/64	.120	500′	4	30
16	7x.0192	1/32	.150	500′	4	38

*Not listed by Underwriters.

ANACONDA WIRE AND CABLE

RUBBER-INSULATED LEAD-COVERED WIRE AND CABLE

TYPE RL—600 VOLTS



Approved by National Board of Fire Underwriters for use in underground ducts, mines, tunnels or other places where moisture is encountered. Made in single, two or three conductors, solid or stranded, soft tinned copper each insulated with Code, Type R; Performance, Type RP; Heat-resisting, Type RH; and Type RW, for moist locations; or special rubber compound.

Multiple conductors are polarized black and white for two conductors, and black, white and red for three conductors, with either tapes or moisture-repellent braids. The two conductors are paralleled and leaded; the three conductors are cabled with jute fillers to make round, taped and leaded.

Type RL—Single Conductor—Solid

Size Awg. or CM	No. and Dia. of Strands	Thickness Rubber Inches	Thickness Lead Inches	Diam. Overall Inches	Lgth. Per Reel	Approx. Wt. Lbs. Std. Pkg.
18*	.040	2/64	2/64	.195	1000′	121
16*	.051	2/64	2/64	.205	1000′	130
14	.064	3/64	2/64	.250	1000′	167
12	.081	3/64	2/64	.270	1000′	194
10	.102	3/64	3/64	.320	1000′	295
8	.128	4/64	3/64	.380	1000′	368
6	.162	4/64	4/64	.440	1000′	576

Type RL—Single Conductor—Stranded

14	7x.0242	3/64	2/64	.260	1000′	173
12	7x.0305	3/64	2/64	.280	1000′	202
10	7x.0385	3/64	3/64	.340	1000′	308
8	7x.0486	4/64	3/64	.400	1000′	433
6	7x.0612	4/64	4/64	.460	1000′	609
4	7x.0772	4/64	4/64	.510	1000′	723
3	7x.0867	4/64	4/64	.540	1000′	775
2	7x.0974	4/64	4/64	.570	1000′	855
1	19x.0664	5/64	4/64	.640	1000′	1016
1/0	19x.0745	5/64	4/64	.680	1000′	1133
2/0	19x.0837	5/64	4/64	.725	1000′	1275
3/0	19x.0940	5/64	4/64	.780	1000′	1452
4/0	19x.1055	5/64	4/64	.835	1000′	1659
250M	37x.0822	6/64	5/64	.945	1000′	2286
300M	37x.0900	6/64	5/64	1.000	1000′	2524
350M	37x.0973	6/64	5/64	1.055	1000′	2755
400M	37x.1040	6/64	5/64	1.100	1000′	2979
500M	37x.1162	6/64	5/64	1.185	1000′	3517
600M	61x.0992	7/64	6/64	1.325	500′	2261
700M	61x.1071	7/64	6/64	1.400	500′	2478
750M	61x.1109	7/64	6/64	1.430	500′	2587
800M	61x.1145	7/64	6/64	1.460	500′	2693
900M	61x.1215	7/64	6/64	1.530	500′	2904
1000M	61x.1280	7/64	6/64	1.580	500′	3211
1250M	91x.1172	8/64	7/64	1.780	500′	3995
1500M	91x.1284	8/64	7/64	1.900	500′	4500
1750M	127x.1174	8/64	7/64	2.025	500′	5188
2000M	127x.1255	8/64	7/64	2.130	500′	5691

*No. 18 and 16 Awg. manufactured for 300 volts only.

ANACONDA WIRE AND CABLE

DUPLEX-PARALLEL RUBBER AND LEAD CABLE — 600 VOLTS

Type RDL—Duplex—Solid

Size A.W.G.	No. and Diam. of Strands	Thickness Rubber Inches	Thickness Lead Inches	Approx. Overall Inches	Lgth. Per Reel	Approx. Wt. Lbs. Std. Pkg.
18*	.040	2/64	2/64	.190x .330	1000′	177
16*	.051	2/64	2/64	.200x .350	1000′	203
14	.064	3/64	2/64	.250x .440	1000′	308
12	.081	3/64	3/64	.300x .510	1000′	450
10	.102	3/64	3/64	.320x .550	1000′	495
8	.128	4/64	3/64	.380x .660	1000′	635
6	.162	4/64	4/64	.470x .810	1000′	905

Type RDL—Duplex Stranded

14	7x.0243	3/64	2/64	.250x .440	1000′	274
12	7x.0305	3/64	3/64	.300x .510	1000′	460
10	7x.0385	3/64	3/64	.320x .550	1000′	530
8	7x.0486	4/64	3/64	.380x .660	1000′	670
6	7x.0612	4/64	4/64	.470x .840	1000′	960
4	7x.0772	4/64	4/64	.520x .910	1000′	1330
3	7x.0867	4/64	4/64	.555x .985	1000′	1350
2	7x.0972	4/64	4/64	.580x1.03	1000′	1600
1	19x.0664	5/64	5/64	.670x1.19	1000′	2110
1/0	19x.0745	5/64	5/64	.720x1.27	1000′	2450
2/0	19x.0837	5/64	5/64	.760x1.36	1000′	2710
3/0	19x.0940	5/64	5/64	.810x1.47	1000′	3070
4/0	19x.1055	5/64	5/64	.870x1.58	500′	1840

Type RLM—Three Conductor Round—Solid

Size Awg. or CM						
18*	.040	2/64	3/64	.410	1000′	400
16*	.051	2/64	3/64	.440	1000′	430
14	.064	3/64	3/64	.560	1000′	665
12	.081	3/64	4/64	.600	1000′	750
10	.102	3/64	4/64	.640	1000′	840
8	.128	4/64	4/64	.770	1000′	1110
6	.162	4/64	5/64	.860	1000′	1400

Type RLM—Three Conductor Round—Stranded

14	7x.0242	3/64	4/64	.570	1000′	690
12	7x.0305	3/64	4/64	.610	1000′	780
10	7x.0385	3/64	4/64	.670	1000′	900
8	7x.0486	4/64	4/64	.770	1000′	1155
6	7x.0612	4/64	5/64	.920	1000′	1475
4	7x.0772	4/64	5/64	1.030	1000′	2070
3	7x.0867	4/64	5/64	1.080	1000′	2200
2	7x.0974	4/64	5/64	1.160	1000′	2670
1	19x.0664	5/64	6/64	1.330	500′	1780
1/0	19x.0745	5/64	6/64	1.420	500′	1975
2/0	19x.0837	5/64	6/64	1.520	500′	2305
3/0	19x.0940	5/64	6/64	1.630	500′	2580
4/0	19x.1055	5/64	7/64	1.790	500′	3130
250M	37x.0822	6/64	7/64	1.960	500′	3715
300M	37x.0900	6/64	7/64	2.080	500′	4090
350M	37x.0973	6/64	7/64	2.190	500′	4540
400M	37x.1040	6/64	8/64	2.320	500′	5370
500M	37x.1162	6/64	8/64	2.500	500′	6080

*For 300-volt service only.

ANACONDA FLEXIBLE CORDS

TYPE FF—SINGLE CONDUCTOR

Rubber-Insulated Flexible Fixture Wire Cotton or Rayon

Type FF fixture wire is made of flexible bunched, soft bare copper conductor, separator, insulated with Code, Type R; Performance, Type RP; Heat-resisting, Type RH; and Type RW, for moist locations, or special rubber compound, and covered with a soft, glazed cotton or rayon braid, with or without colored tracer for identification.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Lgth. on Spool or Coil	No. of Spools or Coils in Carton	Wt. Lbs. Std. Pkg.
18	16x30	1/64	.105	1000′	4 Spools	42
18	16x30	1/32	.135	500′	4 Spools	28
16	26x30	1/32	.150	500′	4 Spools	35
14	41x30	3/64	.200	500′	1 Coil	16

TYPE C—TWISTED PAIR LAMP CORD

Type C lamp cords consist of two flexible bare copper conductors, separator, with Code insulation, soft or glazed cotton or rayon braid over each insulated conductor, twisted together. Can be furnished in all standard colors.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Lgth. on Spool or Coil	No. of Spools or Coils in Carton	Wt. Lbs. Std. Pkg.
18	16x30	1/32	.270	250′	4 Spools	29
16	26x30	1/32	.300	250′	4 Spools	36
14	41x30	3/64	.395	250′	1 Coil	17

TYPE PO—PARALLEL LAMP CORD

Two flexible bare copper conductors, separator, insulated with Code insulation. Each insulated conductor covered with a dry cotton braid, coded for polarity, the two conductors laid parallel and covered with a soft or glazed cotton or rayon braid in standard colors.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length on Spool or Coil	No. of Spools Carton	Wt. Lbs. Std. Pkg.
18	16x30	1/64	.130x.240	250′	8	44
18	16x30	1/32	.160x.305	250′	4	30
16	26x30	1/32	.175x.335	250′	4	40
14	41x30	3/64	.225x.430	*	*	*

*Packed as required by customer.

ANACONDA FLEXIBLE CORDS

TYPE P—REINFORCED CORD

Two flexible bare copper conductors, each with separator, with Code insulation. Each insulated conductor covered with a color-coded, dry braid, twisted together, rubber jacketed and braided overall with black soft or glazed cotton yarn.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std. Pkg.
18	16x30	1/64	.295	250′	1	11
18	16x30	1/32	.355	250′	1	17
16	26x30	1/32	.395	250′	1	21
14	41x30	3/64	.480	250′	1	31

TYPE PWP—REINFORCED CORD

Two flexible bare copper conductors, each with separator, with Code insulation. Each insulated conductor covered with a color-coded, dry braid, twisted together, rubber jacketed and braided overall with soft cotton yarn. Finished with a moisture- and weather-resisting compound.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std. Pkg.
18	16x30	1/64	.305	250′	1	15
18	16x30	1/32	.370	250′	1	19
16	26x30	1/32	.395	250′	1	23
14	41x30	3/64	.505	250′	1	33

TYPE PD—BRAID OVERALL

Two flexible bare copper conductors, each with separator, with Code insulation. Each insulated conductor covered with a coded cotton braid, the two conductors twisted together and a soft or glazed cotton or rayon braid overall. Regularly furnished in black.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std. Pkg.
18	16x30	1/32	.315	250′	1	8
16	26x30	1/32	.345	250′	1	11

Specify type of covering required, when ordering.

ANACONDA FLEXIBLE CORDS

TYPE K—HEAVY DUTY CORDS*

Two flexible bare copper conductors, each with separator, with Code insulation. Each insulated conductor covered with coded saturated braid, twisted together with saturated jute. Covered overall with tape and braid. Saturated and finished with a moisture- and weather-resisting compound.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std. Pkg.
18	16x30	1/32	.360	250′	1	15
16	26x30	1/32	.385	250′	1	19
14	41x30	3/64	.485	250′	1	27
12	65x30	3/64	.525	*	*	*
10	105x30	3/64	.585	*	*	*
8	133x29	4/64	.730	*	*	*
6	133x27	4/64	.825	*	*	*
4	133x25	4/64	.955	*	*	*
2	259x26	4/64	1.100	*	*	*

*Packed as required by customer.

*Type K—3/c—Border light cable similar construction to above except multi-conductor.

OSCILLATING FAN CORD

Two or three flexible bare copper conductors, each with separator, with Code insulation. Each insulated conductor covered with a coded rayon braid, the two or three conductors twisted together and covered with a soft, glazed cotton or rayon braid overall.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Dia. Overall Inches	Approx. Net Wt. M Feet Pounds
20	105x40	1/64	.225 2 Cond.	17
20	105x40	1/32	.290 2 Cond.	19
20	105x40	1/64	.240 3 Cond.	22
20	105x40	1/32	.305 3 Cond.	26

*Standard packing: Packed as required by customer.

DURA-TWIN—TYPE PO-SJ

This type rubber sheathed smooth finish cord cannot fray or fade. It resists crushing, abrasion, kinking and wear. Furnished in black, green, brown and ivory colored rubber.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length on Spools	No. of Spools Cart.	Lbs. Std. Pkg.
18	42x34	1/32	.156x.234	250′	4	34
16	66x34	1/32	.172x.250	250′	4	52

ANACONDA FLEXIBLE CORDS

TYPE SJ—ALL-RUBBER CORDS

30/40% Underwriters Standard

Conductors are made of bunched, soft, bare copper, separator, with color coded 30% insulation. Insulated conductors twisted together with cotton fillers. Cotton serving over assembly, jacketed with a 40% compound.

Two Conductor

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std.Pkg.
18	16x30	1/32	.295	250′	1	13
16	26x30	1/32	.325	250′	1	15

Three Conductor*

18	16x30	1/32	.330	250′	1	19
16	26x30	1/32	.355	250′	1	22

*Also made with four conductors.

TYPE S—ALL-RUBBER CORDS

30/40% Underwriters Standard

Conductors are made of bunched, soft, bare copper, separator, with color coded 30% insulation. Insulated conductors twisted together with cotton fillers, jacketed with 40% compound.

Two Conductor

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std.Pkg.
18	42x34	1/32	.395	250′	1	21
16	70x34	1/32	.410	250′	1	24
14	84x33	3/64	.530	250′	..	37
12	65x30	3/64	.605	250′	..	45
10	105x30	3/64	.645	250′	..	57

Three Conductor

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std.Pkg.
18	42x34	1/32	.410	250′	1	24
16	70x34	1/32	.430	250′	1	29
14	84x33	3/64	.565	250′	..	47
12	65x30	3/64	.635	250′	..	57
10	105x30	3/64	.690	250′	..	78

Nos. 14, 12 and 10 are in 250-foot coils wrapped.

ANACONDA FLEXIBLE CORDS

TYPE HPD—FLEXIBLE HEATER CORD

Constructed of bunched, soft, bare, copper strand, cotton served, with Code insulation, covered with asbestos serving. Two conductors are twisted together with a soft or glazed cotton or rayon braid overall. Furnished in all standard color combinations.

3000 Cycle*

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std.Pkg.
18	42x34	1/64	.290	250′	1	8
16	66x34	1/64	.315	250′	1	9
14	82x33	1/64	.345	250′	1	15
12	65x30	1/64	.380	250′	1	20

10000 Cycle**

18	65x36	1/64	.310	250′	1	9
16	104x36	1/64	.335	250′	1	10

Long Wear Cotton Twine—HPD

18	42x34	1/64	.322	Packed as required
16	66x34	1/64	.374	Packed as required
14	82x33	1/64	.405	Packed as required

*Underwriters' Red Bracelet label.
**Underwriters' Gold Bracelet label.
‡Glazed braid.

TYPE HSJ—FLEXIBLE HEATER CORD

Same construction as type HPD, but with heat-resisting rubber jacket applied over soft outer braid. In four colors, black, ivory, green and brown. Carries Underwriters' Red Bracelet label.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std.Pkg.
18	42x34	1/64	.340	250′	1	12
16	66x34	1/64	.362	250′	1	15

TYPE HC—3000 CYCLE—FLEXIBLE HEATER CORD

Type HC cord is made of bunched soft, bare, copper strands, cotton served. Insulated with soft rubber compound and covered with asbestos serving, braided with a soft or glazed cotton or rayon braid. Two conductors twisted together with one marked for identification. Carries Underwriters' Red Bracelet label.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Diam. Overall Inches	Length Per Coil	No. of Coils in Cart.	Wt. Lbs. Std.Pkg.
18	42x34	1/64	.320	250′	1	9
16	66x34	1/64	.340	250′	1	11
14	82x33	1/64	.370	250′	1	14
12	65x30	1/64	.410	250′	1	18

AMERICAN BEAUTY HEATER CORD

"American Beauty" CORD
AMERICAN ELECTRICAL HEATER CO.
100-GB 250 FEET

"American Beauty" heater cord has Gold and Black outer covering. No. 96-ST-GB conductors have separate outer covering; 100-GB and 10X-GB conductors are under one outer covering. Regularly put up in 250-ft. spools with Underwriters' 10,000 cycle gold bracelet labels at 5-foot intervals.

Cat. No.	Size Cord	Carton	Std. Pkg.	Approx. Shpg Wt. Lbs.	List Price Per Spool
100-GB	17 Gauge	1	4	45	**$11.25**
96ST-GB	17 Gauge	1	4	45	**11.50**
10X-GB	16 Gauge	1	4	45	**12.00**

ANACONDA FIXTURE WIRE

TYPE AF—STRANDED SINGLE CONDUCTOR

Constructed of bunched, soft, bare copper strands, asbestos insulation, finished with or without a cotton or rayon braid.

Marker—With braid: one or more uncolored cotton threads in each braid. Without braid: one or more uncolored cotton threads wound spirally in asbestos.

Size A.W.G.	No. and Size of Strands	Approx. Outside Diam., In. Rayon Braid	Cotton Braid	Plain
18	16x30	.125	.135	.110
16	26x30	.140	.185	.125
14	41x30	.155	.165	.140
12*	65x30	.175	.185	.160

*Underwriters do not approve this size for fixture wire.

ANACONDA THERMOSTAT CONTROL CABLE

Made of solid soft copper conductors in two or more conductor combinations twisted together. Insulation consists of two cotton servings on each individual conductor with braid overall. Saturated and finished with a special paraffin wax saturation. Individual conductors are color coded.

Twisted Conductors with Cotton Braid Overall

Size A.W.G.	Length Per Coil*	Carton Coils Bdl.	Wt. Lbs. Std. Pkg.	Size A.W.G.	Length Per Coil*	Carton Coils Bdl.	Wt. Lbs. Std. Pkg.
16/2	500′	5	22	18/2	500′	5	46
16/3	500′	5	30	18/3	500′	5	62
16/4	500′	5	41	18/4	500′	5	85
16/5	500′	5	52	18/5	500′	5	98

*Also shipped in 250 to 1,000-foot coils.

ANACONDA ARMORED THERMOSTAT CONTROL CABLE

Size A.W.G.	Lgth. on Spools or Coils*	Approx. Wt.Lbs. per 1,999 Ft.	Size A.W.G.	Lgth. on Spools or Coils*	Approx. Wt.Lbs. per 1,999 Ft.
16/2	500′	50	18/2	500′	34
16/3	500′	60	18/3	500′	40
16/4	500′	72	18/4	500′	50
16/5	500′	90	18/5	500′	62

*Also shipped in 250 to 1,000-foot coils.

ANACONDA DAMP-PROOF OFFICE WIRES

Made of solid soft copper conductor. Insulation consists of a weatherproof wrap of cotton and a combination color cotton braid for appearance. Finished with a special paraffin-base wax.

Single Conductor

Size A.W.G.	Dia. of Wire	Approx. Diam. Overall	Lgth. on Std. Spool or Coil*	No. of Spools or Coils in Carton	Approx. Shpg.Wt. Std.Pkg.
14	.064	.108	10 lb.	5 Coil	53
16	.051	.090	10 lb.	5 Coil	53
18	.040	.080	10 lb.	5 Coil	53
20	.032	.071	10 lb.	5 Coil	53

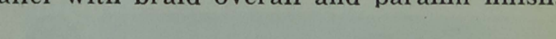
Duplex—Parallel

Size A.W.G.	Dia. of Wire	Approx. Diam. Overall	Lgth. on Std. Spool or Coil*	No. of Spools or Coils in Carton	Approx. Shpg.Wt. Std.Pkg.
14	.064	.150x.245	10 lb.	5 Coil	53
16	.051	.132x.215	10 lb.	5 Coil	53
18	.040	.125x.187	10 lb.	5 Coil	53
20	.032	.118x.179	10 lb.	5 Coil	53

*Also shipped 7 7-lb. spools in carton; shipping weight 53 pounds.

ANACONDA ANNUNCIATOR WIRE

SINGLE CONDUCTOR



Made of solid, bare copper conductors covered with two servings of soft cotton saturated with paraffin. Single conductor wires furnished in all standard colors. Twisted pair wire is furnished in different colors for polarity.

The twin conductor cable is made up the same as single conductor except two wires are laid parallel with braid overall and paraffin finish.

Size A.W.G.	Dia. of Wire	Approx. Diam. Overall	Length on Spool*	No. of Spools Carton	Wt. Lbs. Std.Pkg.
14	.064	.103	5 lb.	10	55
16	.051	.088	5 lb.	10	55
18	.040	.074	5 lb.	10	55
20	.032	.069	5 lb.	10	55
22	.025	.060	5 lb.	10	55
24	.020	.052	5 lb.	10	55

*Also shipped 50 1-lb. spools; 7 7-lb. spools; 50 1-lb. cartons; or 100 ½-lb. cartons.

Shipping weight, 55 pounds.

ANACONDA TELEPHONE WIRE

RUBBER INSULATED TELEPHONE WIRE

Each of the different types of Anaconda rubber insulated telephone wire are made for specific applications. These wires are made of soft or hard-drawn copper, high or medium conductivity bronze, or galvanized iron. The choice of conductor will depend upon the service requirements.

OUTSIDE WIRE—MOISTURE AND WEATHER-RESISTING

Outside twisted distribution drop wire is made of hard-drawn, heavily-tinned, solid copper conductors (other conductors as specified), individually insulated with rubber and covered with a braid saturated and finished with moisture- and weather-resisting compounds. The braid on one of these conductors has a raised thread for polarity identification.

Size A.W.G.	Description	Dia. Over Rubber	Length per Coil	Carton	Wt. Lbs. Std.Pkg.
20	Bridle	.085	1000′	Wrap.	19
19	Bridle	.098	1000′	Wrap.	21
18	Bridle	.109	1000′	Wrap.	25
17	Bronze Drop	.110	1000′	Wrap.	32
17*	Bronze Drop	.110	1000′	Wrap.	32
17*	Bronze Tree	.115	1000′	Wrap.	53
16	Outside	.125	1000′	Wrap.	40
14	Outside	.156	1000′	Wrap.	55
14	Bronze Outside	.156	1000′	Wrap.	55
12	Outside	.175	1000′	Wrap.	83

*Parallel—other sizes twisted.

INSIDE WIRE—DRY BRAID

Inside twisted wire is made of two or three soft, tinned, solid conductors, individually insulated with rubber and covered with a dry, glazed, olive green or oak tan cotton braid, coded for polarity. Used for interior connections.

Size A.W.G.	Description	Dia. Over Rubber	Lgth. per Coil	Carton	Wt. Lbs. Std.Pkg.
22	Flameproof Dist.	.056	500′	4	21
20	Flameproof Dist.	.063	500′	4	25
19	Flameproof Dist.	.098	500′	4	42
20	Instrument	.059	**	--	----
20	Fixture W.P. Black	.063	**	--	----
22	Inside	.087	500′	5	32
22	Inside	.056	500′	5	24
19	Inside	.098	500′	5	48
18	Inside	.109	500′	5	59
16	Inside	.125	500′	5	95
14	Inside	.156	500′	5	135
20	Switchboard	.085	1000′	Wrap.	18
22	Duct	.063	1000′	Wrap.	14

**Special order only.

RUBBER COVERED TELEPHONE WIRES

IRONITE

Ironite is a special conductor stronger and lighter than copper and just as flexible. Tensile strength one-third greater than copper size for size. Highest conductivity. Double galvanized by a process which prevents rust.

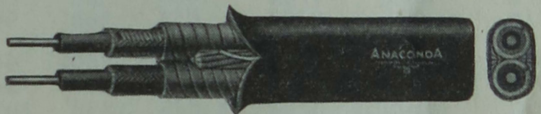
Insulated with New Code or 30 per cent Para as specified. Weatherproof braids. Furnished in twisted pair, single, triplex or parallel. List prices subject to quantity discounts.

Size B.W.G.	Size B.&S.	Diam. Inches	Wt. Lbs. 1000 Ft.	Price per 1000 Ft.
14	12	11/64	80	Market Price
16	14	5/32	65	Market Price
18	16	4/32	39	Market Price
19	17	7/64	27	Market Price

ANACONDA NON-METALLIC SHEATHED CABLE

DURAX—600 VOLTS

Furnished without Ground Wire unless order definitely specifies "With Ground Wire."



Durax is a durable non-metallic sheathed cable for concealed or open work in locations that are reasonably dry, where the cable will not be exposed to undue injury or abuse.

Two-Conductor

Size AWG		No. and Dia. Strands	Thickness Rubber	Approx. Overall Inches	Lgth. per Coil	Wt. Std. Pkg.	Without Grd.
Solid	Ground Wire						
14	16	.064	3/64	.650x.362	250′	28	26
12	14	.081	3/64	.682x.379	200′	30	28
10	12	.102	3/64	.724x.400	200′	38	33
*8	10	7x.0486	4/64	.954x.515	125′	42	39
*6	8	7x.0612	4/64	1.030x.553	125′	53	50
*4	6	7x.0772	4/64	1.126x.601	125′	81	70

Three-Conductor†

14	16	.064	3/64	.692	200′	32	32
12	14	.081	3/64	.729	200′	40	38
10	12	.102	3/64	.774	200′	52	51
*8	10	7x.0486	4/64	1.022	125′	52	53
*6	8	7x.0612	4/64	1.106	125′	77	70
*4	6	7x.0772	4/64	1.206	125′	109	98

*These sizes stranded.

†May also be obtained in four-conductor.

ANACONDA ARMORED CABLE

TYPE AC—600 VOLTS

This cable is made of soft, heavily tinned, solid or stranded copper conductors, individually insulated with rubber and covered with a moisture-resisting and flame-retarding saturated braid. Individual conductors finished in different colors for identification. Multiple conductors are twisted and covered overall with a tough overlapping saturated Kraft paper, which furnishes valuable protection between the insulated wires and steel armor.

A bag of bushings is furnished with every coil as a protection against short circuits which may be caused by the sharp saw-cut edge of the steel armor.

The flexible, steel armor overall is formed of heavily zinc-coated steel strip, interlocked construction, materially increasing the safety of the conductors. The method of interlocking permits greater flexibility and creates continuous metal to metal grounding contact throughout the entire length of the cable.

Solid

Size A.W.G. and No. Cond.	Dia. of Wire	Thickness Rubber Inches	Approx. Dia. Overall Inches	Length per Coil	Wt. Lbs. Std.Pkg.
14/1	.064	3/64	.375	250′	35
14/2	.064	3/64	.540	250′	65
14/3	.064	3/64	.570	250′	74
14/4	.064	3/64	.615	250′	83
12/1	.081	3/64	.395	250′	39
12/2	.081	3/64	.575	250′	72
12/3	.081	3/64	.605	250′	82
12/4	.081	3/64	.655	250′	96
10/1	.102	3/64	.415	250′	44
10/2	.102	3/64	.615	250′	84
10/3	.102	3/64	.645	250′	102
10/4	.102	3/64	.740	150′	86
8/1	.128	4/64	.465	250′	61
8/2	.128	4/64	.785	150′	81
8/3	.128	4/64	.830	150′	97
6/1	.162	4/64	.530	250′	72
Stranded					
10/1	7x.0385	3/64	.450	250′	48
8/1	7x.0486	4/64	.515	100′	27
8/2	7x.0486	4/64	.770	100′	56
8/3	7x.0486	4/64	.815	150′	106
8/4	7x.0486	4/64	.895	100′	83
6/1	7x.0612	4/64	.515	250′	77
6/2	7x.0612	4/64	.890	100′	72
6/3	7x.0612	4/64	.945	100′	92
6/4	7x.0612	4/64	1.030	100′	108
4/1	7x.0772	4/64	.565	100′	40
4/2	7x.0772	4/64	.985	100′	90
4/3	7x.0772	4/64	1.045	100′	112
4/4	7x.0772	4/64	1.230	100′	125
2/1	7x.0974	4/64	.635	100′	53
2/2	7x.0974	4/64	1.120	100′	118
2/3	7x.0974	4/64	1.260	100′	150
2/4	7x.0974	4/64	1.380	100′	190
1/1	19x.0664	5/64	.720	100′	72

ANACONDA ARMORED LEADED CABLE

TYPE ACL—600 VOLTS

Constructed with moisture- and weather-resisting braided, insulated conductors. Solid or stranded, parallel or twisted, fibrous covering on 3-conductor, leaded, with steel armor overall.

Size A.W.G. and No. of Conductors Solid	Stranded	Thickness Rubber Inches	Thickness Lead Inches	Approx. Dia. Overall Inches	Std. Pkg. in Coils	Shpg. Wt.Lbs.
14–2	......	3/64	2/64	.620	150′	66
14–3	......	3/64	2/64	.650	150′	104
12–2	......	3/64	2/64	.655	150′	73
12–3	......	3/64	2/64	.700	150′	115
10–2	......	3/64	2/64	.710	100′	65
10–3	......	3/64	2/64	.745	100′	85
....	8–2	4/64	3/64	.830	100′	97
....	8–3	4/64	3/64	.870	100′	134
....	6–2	4/64	3/64	.995	100′	120
....	6–3	4/64	3/64	1.050	100′	160
....	4–3	4/64	4/64	1.185	100′	222

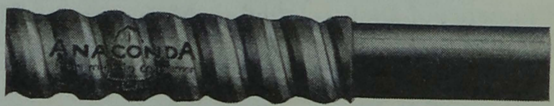
ANACONDA ARMORED LAMP CORD

TYPE AC—TWO CONDUCTOR

Made of two bunched, soft, bare copper conductors, separator, code insulation, covered with a cotton braid, saturated with a moisture- and weather-resisting compound coded for polarity. The insulated conductors are twisted together and covered with the overlapping Kraft paper. Over this is applied the interlocking flexible steel armor.

Size A.W.G.	No. and Size of Strands	Thickness Rubber Inches	Approx. Dia. Overall Inches	Length in Coil	Shpg. Wt. Lbs.
18/2	16x30	1/64	.420	250′	50
16/2	26x30	1/64	.485	250′	60
14/2	41x30	3/64	.550	250′	80

ANACONDA ARMORED GROUND WIRE



Made of soft, tinned copper conductor with an armor protection. Used for grounding purposes.

Size A.W.G.	Dia. of Wire	Approx. Dia. Overall	Std. Pkg.	Approx. Shpg. Wt. Std. Pkg.
8	.128	.328	250′ Coil	35
6	.162	.362	250′ Coil	46
4	.204	.404	250′ Coil	62

ANACONDA SUNEX SECURITYFLEX PORTABLE CORDS AND CABLES

Rubber sheathed portable cables are protected with a 60 per cent rubber jacket to withstand severe service requirements in mining operations either below or above ground.

All copper conductors are flexible rope strands. The design of the strand is such that it gives flexibility without binding. This is accomplished by a herringbone construction. The individual ropes are twisted in opposite directions and assembled alternately around the core rope.

The insulating compound is a long-aging, high delectric, 40 per cent compound. Above 2000 volts Anaconda corona-resisting ACR compound is used for insulation.

The Sunex Securityflex, 60 per cent rubber belt, used on these cables, is similar to high-grade tire stock.

Sunex is an especially designed compound which is abrasion, acid and alkali resistant. A special feature is its resistance to the actinic rays of the sun preventing oxidation and deterioration. Flexibility and long life are assured.

SUNEX SECURITYFLEX CORDS

Soft annealed bare copper extra flexible conductors, served with a cotton separator, insulated with a high-grade 40 per cent insulating compound, color coded, conductors twisted together with a suitable filler and jacketed with a tough, long aging, 60 per cent rubber compound cured in lead, under pressure, to provide a dense hard wearing armor.

HEAVY DUTY—TYPE S

For extensions, portable tools and appliances.

Single Conductor				Two Conductor			
		Approx.				Approx.	
Size A.W.G.	Stranding	O.D. In.	Shpg. Wt. 1000 Ft.	Size A.W.G.	Stranding	O.D. In.	Shpg. Wt. 1000 Ft.
18	42x34	.183	23	18	42x34	.400	82
16	70x34	.193	27	16	70x34	.420	93
14	84x33	.248	42	14	84x33	.530	158
12	65x30	.253	54	12	65x30	.600	216
10	105x30	.300	70	10	105x30	.650	359
Three Conductor				Four Conductor			
18	42x34	.420	93	18	42x34	.440	114
16	70x34	.450	111	16	70x34	.490	140
14	84x33	.560	299	14	84x33	.620	340
12	65x30	.640	355	12	65x30	.675	395
10	105x30	.700	420	10	105x30	.750	490
Five Conductor				Six Conductor			
18	42x34	.480	200	18	42x34	.531	225
16	70x34	.520	230	16	70x34	.561	255
14	84x33	.675	395	14	84x33	.743	445
12	65x30	.745	465	12	65x30	.788	510
10	105x30	.815	570	10	105x30	.863	665

LIGHT DUTY—TYPE SJ

A cord smaller in diameter, lighter in weight recommended for drop cords, small tools and household appliances.

Two Conductor				Three Conductor			
		Approx.				Approx.	
Size A.W.G.	Stranding	O.D. In.	Shpg. Wt. 1000 Ft.	Size A.W.G.	Stranding	O.D. In.	Shpg. Wt. 1000 Ft.
18	42x34	.300	61	18	42x34	.350	77
16	70x34	.350	73	16	70x34	.400	95
14	84x33	.425	116	14	84x33	.470	150
Four Conductor							
18	42x34	.360	90				
16	70x34	.390	110				

There are no N.E.C. Standards over four conductors.

NEOPRENE SECURITYFLEX CORDS

Constructed the same as regular Sunex Securityflex, with the exception that the outer belt is composed of a special Neoprene compound which renders the cord oil resisting, acid and fume resisting and non-oxidizing. Excellent for use where exposed to sunlight.

HEAVY DUTY—TYPE OS

Single Conductor				Two Conductor			
		Approx.				Approx.	
Size A.W.G.	Stranding	O.D. In.	Shpg. Wt. 1000 Ft.	Size A.W.G.	Stranding	O.D. In.	Shpg. Wt. 1000 Ft.
18	42x34	.183	26	18	42x34	.400	95
16	70x34	.193	30	16	70x34	.420	106
14	84x33	.248	45	14	84x33	.530	179
12	65x30	.263	58	12	65x30	.600	345
10	105x30	.300	74	10	105x30	.650	390
Three Conductor							
18	42x34	.420	105				
16	70x34	.450	124				
14	84x33	.560	321				
12	65x30	.640	383				
10	105x30	.700	455				

LIGHT DUTY—TYPE OSJ

Two Conductor				Three Conductor			
18	42x34	.300	67	18	42x34	.350	84
16	70x34	.350	81	16	70x34	.400	103
14	84x34	.425	127	14	84x33	.470	162

FLEXIBLE MOTOR LEAD WIRE

Flexible Motor Lead Wire is constructed with tinned, copper conductors, separator, rubber insulation, covered with weatherproof, mica-finished or lacquered braid.

B & S Gauge	Stranding	Code Wall	Coil Lgth., Feet	Wt. Lbs. 1000 Ft.
18	16	2/64	1000	13
16	26	2/64	1000	17
14	41	3/64	500	30
12	65	3/64	500	41
10	105	3/64	500	60
8	84	4/64	250	83
6	84	4/64	250	135
4	133	4/64	250	182

ANACONDA SUNEX SECURITYFLEX CABLES

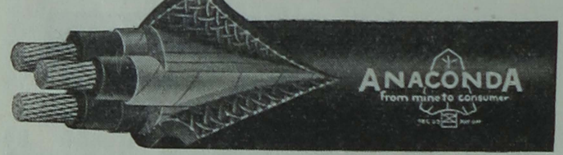
PORTABLE CABLE

Recommended wherever a safe, long wearing, portable cable is needed for transmission of electrical energy. Conductors composed of soft annealed fine copper strands to insure maximum flexibility. Conductors covered with a 40 per cent insulating rubber compound and regularly color taped for polarity. Conductors laid up with a suitable filler covered with a heavy seine twine webbing deeply embedded in a tough, long aging, 60 per cent rubber jacket cured in lead under pressure to provide a dense hard wearing armor.

Two Conductor—Round—600 Volts

Size A.W.G.	Stranding	Approx. O.D. Inches	Approx. Shpg. Wt. 1000 Ft.
8	49	.85	500
8	133	.85	505
6	49	.95	760
6	133	.95	765
6	259	.95	775
5	49	1.00	875
5	133	1.00	875
4	49	1.10	995
4	133	1.15	1010
4	259	1.15	1015
3	49	1.25	1160
3	133	1.25	1285
3	259	1.25	1290
2	49	1.30	1410
2	133	1.30	1445
2	259	1.30	1420
2	427	1.30	1420
1	133	1.50	1910
1	259	1.50	1880
1	427	1.50	1885
1/0	133	1.60	2155
1/0	259	1.60	2125
1/0	427	1.60	2125
2/0	133	1.70	2815
2/0	259	1.70	2775
2/0	427	1.70	2775
3/0	259	1.80	2940
3/0	427	1.80	3000
4/0	259	2.00	3870
4/0	427	2.00	3955

TYPE W—I.P.C.E.A. STANDARDS



Conductors are laid up with a suitable filler, then insulated with high-grade 40% rubber—over this are color-coded tapes, then an open seine twine weave for reinforcement and jacketed with a 60 per cent rubber compound cured in lead under pressure to provide a dense, hard-wearing armor.

Three Conductors—Round—600 Volts

8	49	.95	735
8	133	.95	745
6	49	1.10	910
6	133	1.10	910
6	259	1.10	930
5	49	1.15	1060
5	133	1.15	1060
4	49	1.20	1225
4	133	1.20	1340
4	259	1.20	1340
3	49	1.30	1485
3	133	1.30	1510
3	259	1.30	1515

TYPE W—I.P.C.E.A. STANDARDS

Three Conductors—Round—600 Volts (Continued)

Size A.W.G.	Stranding	Approx. O.D. Inches	Approx. Shpg. Wt. 1000 Ft.
2	49	1.40	1685
2	133	1.40	1935
2	259	1.40	1905
2	427	1.40	1905
1	133	1.60	2245
1	259	1.60	2210
1	427	1.60	2215
1/0	133	1.70	2945
1/0	259	1.70	2905
1/0	427	1.70	2905
2/0	133	1.80	3345
2/0	259	1.80	3250
2/0	427	1.80	3300
3/0	259	2.00	4055
3/0	427	2.00	4120
4/0	259	2.10	4645
4/0	427	2.10	4730
250,000	259	2.22	5090
250,000	427	2.22	5080
300,000	259	2.37	5860
300,000	427	2.33	5775
350,000	259	2.49	6690
350,000	427	2.50	6665
400,000	259	2.67	7655
400,000	427	2.69	7675
450,000	259	2.80	8535
450,000	427	2.80	8460
500,000	259	2.94	9415
500,000	427	2.91	9245

Four Conductors—Round—600 Volts

8	49	1.05	845
8	133	1.10	855
6	49	1.15	1065
6	133	1.20	1065
6	259	1.20	1085
5	49	1.25	1355
5	133	1.25	1355
4	49	1.30	1575
4	133	1.40	1590
4	259	1.40	1595
3	49	1.50	1760
3	133	1.50	1795
3	259	1.50	1810
2	49	1.60	2220
2	133	1.60	2270
2	259	1.60	2230
2	427	1.60	2230
1	133	1.80	3055
1	259	1.80	3015
1	427	1.80	3015
1/0	133	1.90	3305
1/0	259	1.90	3245
1/0	427	1.90	3245
2/0	133	2.00	4295
2/0	259	2.00	4235
2/0	427	2.00	4240
3/0	259	2.20	4815
3/0	427	2.20	4885
4/0	259	2.40	5635
4/0	427	2.40	5760

ANACONDA SUNEX SECURITYFLEX CABLES

600 VOLTS—TYPE G—WITH GROUND WIRE

Three Conductors

Size A.W.G.	Strands	Approx. O.D. Inches	Ground Wires Size	Ground Wires Strands	Approx. Shpg. Wt. 1000 Ft.
8	49	.95	14	19	735
8	133	.95	14	19	740
6	49	1.10	12	19	915
6	133	1.10	12	19	920
6	259	1.10	12	19	935
4	49	1.20	10	49	1240
4	133	1.20	10	49	1355
4	259	1.20	10	49	1355
3	49	1.30	9	49	1525
3	133	1.30	9	49	1545
3	259	1.30	9	49	1550
2	49	1.40	8	49	1730
2	133	1.40	8	49	1975
2	259	1.40	8	49	1950
2	427	1.40	8	49	1950
1	133	1.60	7	49	2310
1	259	1.60	7	49	2280
1	427	1.60	7	49	2280
1/0	133	1.70	6	49	3050
1/0	259	1.70	6	49	3015
1/0	427	1.70	6	49	3015
2/0	133	1.80	5	133	3485
2/0	259	1.80	5	133	3440
2/0	427	1.80	5	133	3440
3/0	259	2.00	4	133	4245
3/0	427	2.00	4	133	4305
4/0	259	2.10	3	133	4885
4/0	427	2.10	3	133	4970

Not carried in stock. Minimum order acceptable —100 feet.

The details of construction and recommendations for the various applications are based on IPCEA specification.

Cables can be furnished:

Without Ground Wire	Type W
With Ground Wire	Type G
With Copper Shielding	Type SH

Type SH Cables can be furnished in four constructions:

Type SH-A—A braided shield of copper over the individual conductor

Type SH-B—A braided shield over the assembled conductors

Type SH-C—A ground wire inserted and a shield over the assembly

Type SH-D—A braided shield over the individual conductors, and a ground wire inserted.

For safe operating, ground wires and shielding are recommended for voltages above 2500 volts.

WELDING CABLE—Super Flexible

The extreme flexibility necessary in a welding cable is attained in Sunex Securityflex by the use of many fine wires laid up in a rope strand with a short pitch. A separator between the bare strand and the insulating belt facilitates stripping and provides a clean conductor for connecting. The 60 per cent, cured in lead under pressure, belt has been designed to retain extreme flexibility.

Single Conductor

Size A.W.G.	Strands No. 34 Bare	Carrying Cap. in Amps.	Approx. O.D. Inches	Approx. Shpg. Wt. 1000 Ft.
8	420	50	.390	140
6	686	75	.400	165
5	833	85	.436	195
4	1078	100	.495	265
3	1372	150	.500	290
2	1750	200	.560	350
1	2156	250	.625	445
1/0	2695	300	.675	525
2/0	3381	375	.750	635
3/0	4263	450	.815	765
4/0	5341	550	.900	945

LOCOMOTIVE GATHERING CABLES

Has to perform under most severe conditions. Sunex Securityflex is made up with rope stranded conductor in which the center rope has a rubber mastic applied with the surrounding ropes closely adhering thereby forming a strand which, at all times, works as a unit relieving the tension on the center strand.

Single Conductor

Size A.W.G.	Stranding	Approx. O.D. Inches	Approx. Shpg. Wt. 1000 Ft.
8	49	.40	175
8	133	.40	180
6	49	.50	250
6	133	.50	245
6	259	.50	250
5	49	.56	275
5	133	.56	275
4	49	.56	325
4	133	.56	330
4	259	.56	325
3	49	.63	395
3	133	.63	405
3	259	.63	390
2	49	.65	435
2	133	.68	465
2	259	.68	435
2	427	.68	435
1	133	.75	580
1	259	.75	535
1	427	.75	525
1/0	133	.75	635
1/0	259	.75	625
1/0	427	.75	620
2/0	133	.80	750
2/0	259	.80	730
2/0	427	.80	730
3/0	259	.90	950
3/0	427	.90	970
4/0	259	.95	1110
4/0	427	.95	1140

ANACONDA SUNEX SECURITYFLEX CABLE

MINING MACHINE CABLE

ANACONDA
from mine to consumer

Used where two-conductor cable is preferred, also as power leads on cutters, loaders, conveyor belts, chargers and other machines used in mines.

The color coded, rubber insulation is flattened on one side, so that the end view is D-shaped. The flat sides of the D are brought together with a breaker strip between them, then the high-grade rubber cover is cemented on the two D's, forming a single, integral unit. This construction insures flexibility and prevents conductor creepage, kinking and snarling.

Preparation of the cable for connections is simple because the two conductors are easily separated by the breaker strip, and the rubber insulation is especially prepard to strip clean.

Twin Parallel

Size A.W.G.	Stranding	Approx. O.D. Inches	Approx. Shpg. Wt. 1000 Ft.
8	49	.53x .81	410
8	133	.53x .81	530
6	49	.58x .96	620
6	133	.58x .96	630
6	259	.58x .96	630
5	49	.60x .98	695
5	133	.60x .98	695
4	49	.63x1.00	780
4	133	.63x1.00	795
4	259	.63x1.00	795
3	49	.68x1.11	880
3	133	.68x1.11	900
3	259	.68x1.11	900
2	49	.75x1.25	1000
2	133	.75x1.25	1020
2	259	.75x1.25	1000
2	427	.75x1.25	1000
1	133	.81x1.42	1325
1	259	.81x1.42	1305
1	427	.81x1.42	1310
1/0	133	.95x1.52	1510
1/0	259	.94x1.51	1490
2/0	133	1.00x1.63	1905
2/0	259	.99x1.61	1870

ANACONDA SUNEX SECURITYFLEX SHOT FIRING CORD

A specially constructed high tensile strength cord recommended as the most economical, considering the length of service that it will render. The individual copper conductors are reinforced by high tensile strength steel wires. A serving and a braid of cotton thoroughly impregnated with a moisture-repellent preservative compound furnishes the insulation on the individual conductors, ample for the voltage requirements.

Size A.W.G.	No. and Size of Strands	Approx. Dia. Overall Inches	Tensile Strength Lbs.
18	16x.010" Copper 15x.007" Steel	.275	300

Packed in coils to length as specified.

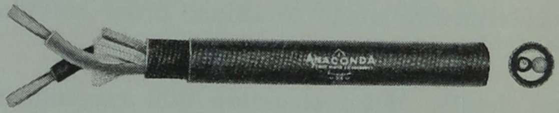
ANACONDA DURACORD PORTABLE CORD

Flexible stranded bare copper conductors, separator, insulated with a high-grade rubber compound. Individual conductors of multiple conductor cables are insulated with colored rubber for coding, cabled together with suitable fillers. For easy connections, a cotton separator prevents the rubber belt from adhering to the cabled conductors. The high-grade rubber belt is then applied over the assembly. A Duracord cover is woven over the rubber belt and securely united to it by a special process. The outer weave is finished with a special oil, grease, acid, and gasoline resisting green lacquer, or for cords permanently exposed to the weather, a moisture and weather-resisting compound is applied.

HEAVY DUTY

Strand-ing	Single Cond. Approx. O.D. Inches	Single Cond. Shpg. Wt. 1000 Ft.	Two Cond. Approx. O.D. Inches	Two Cond. Shpg. Wt. 1000 Ft.	Three Cond. Approx. O.D. In.	Three Cond. Shpg. Wt. 1000 Ft.
			Size A.W.G.—18			
42/34	.183	24	.400	60	.420	84
			Size A.W.G.—16			
70/34	.193	36	.420	80	.450	104
			Size A.W.G.—14			
84/32	.248	48	.530	132	.560	168
			Size A.W.G.—12			
65/30	.263	64	.600	160	.640	216
			Size A.W.G.—10			
105/30	.300	86	.650	200	.700	276

LIGHT DUTY



Size A.W.G.	Stranding	Approx. O.D. Inches	Approx. Shpg. Wt. 1000 Ft.
18	42/34	.300	58

ANACONDA DURACORD SHOT FIRING CORD

In Duracord Shot Fire Cord the conductors are either solid or bunched, then twisted, and a rubber belt and Duracord cover applied.

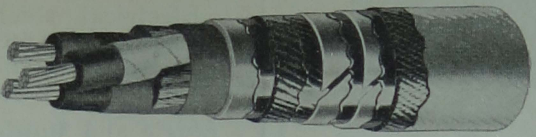
Duracord Shot Fire Cord differs from other types of shot fire cord in that after a blast, it may be pulled out from under the heap of debris—it will not break, because the Duracord cover is tough—the frayed ends may be clipped off and the cord used over again.

Size A.W.G.	No. and Size of Strands	Approx. Dia. Overall Inches	Tensile Strength Lbs.
18	42x34	300	200
16	70x34	350	300

Packed in coils to length as specified.

ANACONDA PARKWAY CABLE

TYPE RLJFJ—METALLIC ARMORED CABLE



Anaconda Parkway Cable is designed for direct burial in earth without the use of ducts. This method of installation is inexpensive and makes this type of cable suitable for a great many applications.

The initial cost of installation of Anaconda Parkway Cable is materially less than that of a duct system. Where a large quantity of cable is to be installed such as in street or airport lighting a special cable plow could be used to make a simple and economical installation.

Anaconda Parkway Cable requires very little jointing; such joints when necessary, usually are at terminal apparatus where the cable is brought above ground permitting a joint to be made easily and affording means of protecting the joint. Anaconda junction boxes can be supplied in any design for use in jointing underground and these boxes are fitted with clamps and a groove in the flange and jute packing and are provided with a filling hole closed by a pipe plug.

SINGLE CONDUCTOR

0-600 Volt

(Grounded and Ungrounded Neutral)

Size Awg or Mcm	Thickness Insulation Inches	Thickness Lead Sheath, Inches	Approx. Overall Diam., In.	Approx. Shpg. Wt. Lbs. Per M Ft.
8	4/64	3/64	.70	732
6	4/64	3/64	.73	835
4	4/64	3/64	.83	1036
2	4/64	4/64	.90	1446
1	5/64	4/64	.97	1680
1/0	5/64	4/64	1.01	1851
2/0	5/64	4/64	1.06	2058
3/0	5/64	4/64	1.11	2298
4/0	5/64	5/64	1.20	2886
250	6/64	5/64	1.28	3258
300	6/64	5/64	1.41	3830
350	6/64	5/64	1.46	4206
400	6/64	5/64	1.51	4546
500	6/64	5/64	1.59	5178

2001-3000 Volt

(Grounded and Ungrounded Neutral)

8	7/64	3/64	.82	936
6	8/64	4/64	.91	1286
4	8/64	4/64	.98	1532
2	8/64	4/64	1.02	1790
1	8/64	4/64	1.07	1940
1/0	8/64	4/64	1.11	2118
2/0	8/64	5/64	1.19	2885
3/0	8/64	5/64	1.24	2864
4/0	8/64	5/64	1.30	3202
250	9/64	5/64	1.45	3806
300	9/64	5/64	1.50	4229
350	9/64	5/64	1.55	4597
400	9/64	5/64	1.60	4920
500	9/64	6/64	1.72	5960

4001-5000 Volt

(Grounded and Ungrounded Neutral)

8	10/64	4/64	.92	1342
6	10/64	4/64	.95	1464
4	10/64	4/64	1.02	1710
2	10/64	4/64	1.09	1956
1	10/64	4/64	1.13	2118
1/0	10/64	5/64	1.21	2570
2/0	10/64	5/64	1.25	2807
3/0	10/64	5/64	1.30	3084
4/0	10/64	5/64	1.43	3610
250	11/64	5/64	1.51	4080
300	11/64	5/64	1.57	4493
350	11/64	6/64	1.65	5216
400	11/64	6/64	1.70	5568
500	11/64	6/64	1.78	6246

TWO-CONDUCTOR—Parallel

0-600 Volt

Size Awg or Mcm	Thickness Insulation Inches	Thickness Lead Sheath, Inches	Approx. Overall Diam., In.	Approx. Shpg. Wt. Lbs. Per M Ft.
8	4/64	4/64	1.04x .75	1264
6	4/64	4/64	1.11x .78	1432
4	4/64	5/64	1.30x .88	2062
2	4/64	5/64	1.46x1.01	2718
1	5/64	5/64	1.60x1.08	3206
1/0	5/64	6/64	1.71x1.15	3894
2/0	5/64	6/64	1.80x1.20	4326
3/0	5/64	6/64	1.91x1.25	4843
4/0	5/64	6/64	2.03x1.31	5460

2001-3000 Volts

(Grounded and Ungrounded Neutral)

8	7/64	5/64	1.26x .88	1860
6	8/64	5/64	1.47x1.02	2442
4	8/64	5/64	1.61x1.09	2924
2	8/64	6/64	1.74x1.17	3757
1	8/64	6/64	1.82x1.21	4094
1/0	8/64	6/64	1.90x1.25	4471
2/0	8/64	6/64	1.99x1.29	4900
3/0	8/64	6/64	2.11x1.35	5438
4/0	8/64	7/64	2.25x1.44	6547

THREE-CONDUCTOR

0-600 Volt

8†	4/64	4/64	1.12	1850
6†	4/64	5/64	1.22	2418
4	4/64	5/64	1.45	3360
2	4/64	5/64	1.55	4044
1	5/64	6/64	1.74	5148
1/0	5/64	6/64	1.83	5712
2/0	5/64	6/64	1.93	6360
3/0	5/64	6/64	2.04	7176
4/0	5/64	7/64	2.20	8640

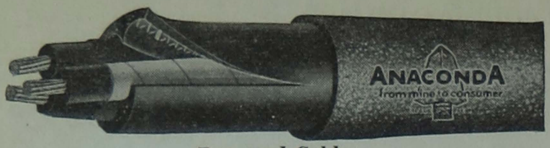
2001-3000 Volt

(Grounded and Ungrounded Neutral)

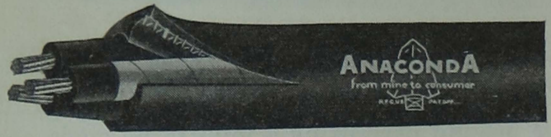
8	7/64	5/64	1.36	2728
6	8/64	5/64	1.57	3589
4	8/64	6/64	1.75	4740
2	8/64	6/64	1.85	5388
1	8/64	6/64	1.95	5988
1/0	8/64	6/64	2.04	6564
2/0	8/64	7/64	2.17	7764
3/0	8/64	7/64	2.28	8628
4/0	8/64	7/64	2.40	9624

†These sizes stranded for Underground Service Entrance Cable.

ANACONDA TYPE DD DURASEAL AND DURASHEATH CABLE



Duraseal Cable



Durasheath Cable

Since Duraseal has come into extremely wide use, it has definitely established itself for applications under severe exposure to earth and duct acids, alkalis, salts, organic decay and to severe weather conditions encountered in aerial service.

Field experience and further development have proved that two types cover all requirements for conditions usually associated with non-metallic sheathed cable, (1) type DD Duraseal rubber-jacketed sisal-braid-covered; (2) Durasheath rubber-jacketed cables.

Both cables are virtually solid blocks of rubber with the conductors molded in, because of rubber fillers in interstices of the cabled conductors held together with a twine binder and rubber jacket tightly applied over the assembly.

Type DD Duraseal answers the universal demand for a cable giving high grade performance in service requiring one continuous cable buried in the ground, pulled into conduits or ducts, run up the side of building or pole or carried on messenger—no need for splices.

The effectiveness of the Type DD Duraseal construction is due to the filling of spaces in the cable with rubber fillers, the rubber jacket moisture seal and the heavy sisal braid with Duraseal saturant and finish—all contributing to maximum protection against mechanical damage, rot, weathering and industrial atmosphere. This cable has been so effective in outdoor applications that it has come into use for application within the industrial plant where corrosive vapors have cut short the life of other cables or conduit systems.

A few advantages of type DD Duraseal and Durasheath cables are:

1. Afford an effective seal against moisture.
2. Unique construction protects insulated conductors from destructive agents usually found in the ground, in ducts and in overhead construction—such as acids, alkalis, salts, organic decay, duct waters containing chemicals, and weather.
3. Afford especially strong protection against impact and abrasion.
4. Corrosion, electrolysis and sheath losses are eliminated.
5. In hot locations, the temperature at which Duraseal finish will migrate is far in excess of the maximum allowable cable operating temperature.
6. The cables can be installed at low as well as high temperatures and will operate equally well within these extremes.
7. The unusually high tensile strength of the sheath makes these cables well adapted for installation with a cable plow.
8. Light weight, extreme flexibility and ease of handling facilitate installation and reduce cost.

A few applications: Street lighting; underground service entrance; industrial plants; railroad track wire; underground distribution; aerial power cables, etc.

SHIELDING OF DURASEAL AND DURASHEATH CABLES

Electrical shielding, consisting of a helical wrapping of 0.003-inch tinned copper tape over each insulated conductor is recommended under the following conditions.

Single and Multiconductor Line-to-Line Voltage

	Grounded Neutral	Ungrounded Neutral
When directly connected to Overhead Lines	All	All
Buried	2501†	2501†
Underground ducts, moist	2501†	2501†
Metal conduit, moist	2501†	2501†
Aerial, in metal rings	2001†	2001†
Aerial, in marlin ties	4501†	2501†
General rule for permanently dry locations	6001†	3501†

†And above.

Shielding may be omitted for cable installed in insulators.

The above shielding recommendations are considered to be representative good practice for normal conditions of installation and use of cable. However, there may be conditions where deviations are justified. For unusual conditions covering specific installations, consult with us.

With shielded cables, some precautions should be observed in installation to secure reliable operation and obtain the full benefits of shielding. The principle points to observe are briefly as follows:

1. **Grounding** — In most cases, the shielding tapes on the cable must be connected to grounds by substantial connections of ample capacity. This should make good contact with the shielding tapes and be connected to a permanent ground. There may be certain specific and unusual operating conditions which should be well understood, where grounding is not required.

2. **Continuity of Shielding Tape** — Where joints are made, the shielding tapes must be continuous across the joint.

3. **Terminations** — Proper stress cones, depending upon the service voltage, should be built up at the terminations of shielded type cables.

GROUND WIRES FOR DURASEAL AND DURASHEATH CABLES

Ground wires are not furnished with Duraseal and Durasheath cables unless specifically requested. There may be installations where ground wires would be required either to serve as a neutral conductor or for the purpose of grounding equipment. It is the general practice, unless otherwise specified, to make the total cross-sectional area of the ground wires equal to approximately two Awg. gauge numbers smaller than the main conductors, or in the case of c.m. sizes 150,000 c.m. smaller than the main conductors. The grounding conductor can be supplied as an integral part of the cable construction. As an example, in a 3-conductor cable, the ground wire, consisting of an uninsulated solid or stranded tinned conductor, would be placed in one of the outer interstices. Also, this grounding conductor can be split into three conductors, each having one-third of the cross-sectional area required, with one of the conductors in each of the outer interstices. While the ground conductor, or conductors, would increase the weight of the cable, as a rule with the construction indicated above, the overall diameter would not be changed.

ANACONDA TYPE DD DURASEAL AND DURASHEATH CABLE

0-600 VOLTS

		DURASHEATH CABLE				DURASEAL CABLE			
Size Awg or Mcm	No. and Diam. of Wire or Strands	Thickness of Insulation and Jacket	Approx. Overall Diameter Inch	Approx. Net Wt. Lbs. Per 1000 Ft.	Approx. Ship. Wt. Lbs. Per 1000 Ft.	Thickness of Insulation and Jacket	Approx. Overall Diameter Inch	Approx. Net Wt. Lbs. Per 1000 Ft.	Approx. Ship. Wt. Lbs. Per 1000 Ft.
			SINGLE CONDUCTOR*						
8	1x.1285	5/64	0.31	76	91	5/64	0.63	185	222
6	1x.1620	5/64	0.35	109	131	5/64	0.66	228	274
6	7x.0612	5/64	0.37	114	137	5/64	0.68	238	286
4	7x.0772	5/64	0.42	169	203	5/64	0.73	304	365
2	7x.0974	5/64	0.48	253	304	5/64	0.79	405	486
1	19x.0664	6/64	0.55	324	389	6/64	0.86	494	593
1/0	19x.0745	6/64	0.59	399	479	6/64	0.90	579	695
2/0	19x.0837	6/64	0.64	492	590	6/64	0.95	685	822
3/0	19x.0940	6/64	0.69	607	728	6/64	1.00	815	978
4/0	19x.1055	6/64	0.75	752	902	6/64	1.06	973	1170
250	37x.0822	7/64	0.82	898	1080	7/64	1.14	1140	1370
300	37x.0900	7/64	0.88	1060	1270	7/64	1.20	1320	1590
350	37x.0973	7/64	0.93	1230	1480	7/64	1.25	1500	1800
400	37x.1040	7/64	0.98	1400	1680	7/64	1.30	1680	2020
450	37x.1103	7/64	1.02	1560	1870	7/64	1.34	1850	2220
500	37x.1162	7/64	1.06	1710	2050	7/64	1.39	2020	2420
600	61x.0992	9/64	1.21	2100	2520	9/64	1.53	2440	2930
700	61x.1071	9/64	1.28	2430	2920	9/64	1.60	2790	3340
750	61x.1109	9/64	1.32	2600	3120	9/64	1.64	2970	3560

			DURASHEATH CABLE				DURASEAL CABLE			
Size Awg or Mcm	No. and Diam of Wire or Strands	Insulation Thickness Inch	Rubber Jacket Thick. Inch	Approximate Overall Diameter Inch	Approx. Net Wt. Lbs. Per 1000 Ft.	Approx. Ship. Wt. Lbs. Per 1000 Ft.	Rubber Jacket Thick. Inch	Approximate Overall Diameter Inch	Approx. Net Wt. Lbs. Per 1000 Ft.	Approx. Ship. Wt. Lbs. Per 1000 Ft.
				TWO CONDUCTOR—FLAT						
8	1x.1285	4/64	6/64	0.78x0.50	280	336	4/64	1.03x0.75	422	506
6	1x.1620	4/64	6/64	0.85x0.54	363	436	4/64	1.10x0.79	515	618
6	7x.0612	4/64	6/64	0.90x0.56	383	460	4/64	1.15x0.81	542	650
4	7x.0772	4/64	7/64	1.02x0.64	537	644	5/64	1.28x0.89	714	857
2	7x.0974	4/64	7/64	1.15x0.70	738	886	5/64	1.40x0.95	933	1120
1	19x.0664	5/64	7/64	1.29x0.77	927	1110	5/64	1.55x1.02	1140	1370
1/0	19x.0745	5/64	8/64	1.41x0.84	1140	1360	6/64	1.67x1.09	1360	1630
2/0	19x.0837	5/64	8/64	1.50x0.88	1350	1620	6/64	1.76x1.14	1590	1910
3/0	19x.0940	5/64	8/64	1.61x0.94	1620	1940	6/64	1.87x1.19	1870	2240
4/0	19x.1055	5/64	8/64	1.73x0.99	1940	2330	6/64	1.99x1.25	2210	2650
250	37x.0822	6/64	10/64	1.96x1.14	2400	2880	7/64	2.18x1.37	2640	3170
300	37x.0900	6/64	10/64	2.07x1.20	2770	3330	7/64	2.30x1.42	3030	3630
350	37x.0973	6/64	10/64	2.17x1.25	3140	3770	7/64	2.40x1.47	3410	4090
400	37x.1040	6/64	10/64	2.27x1.30	3530	4230	7/64	2.50x1.52	3800	4560
450	37x.1103	6/64	10/64	2.36x1.34	3880	4650	7/64	2.59x1.57	4160	5000
500	37x.1162	6/64	12/64	2.51x1.45	4360	5230	8/64	2.71x1.64	4590	5500
				THREE CONDUCTOR						
8	1x.1285	4/64	6/64	0.83	418	502	4/64	1.08	607	728
6	1x.1620	4/64	6/64	0.90	549	659	4/64	1.16	753	904
6	7x.0612	4/64	7/64	0.98	607	728	5/64	1.24	828	994
4	7x.0772	4/64	7/64	1.09	818	982	5/64	1.34	1060	1270
2	7x.0974	4/64	7/64	1.22	1140	1370	5/64	1.48	1410	1690
1	19x.0664	5/64	8/64	1.41	1480	1780	6/64	1.67	1790	2150
1/0	19x.0745	5/64	8/64	1.50	1760	2110	6/64	1.76	2090	2510
2/0	19x.0837	5/64	8/64	1.60	2110	2530	6/64	1.86	2450	2940
3/0	19x.0940	5/64	8/64	1.71	2530	3040	6/64	1.97	2900	3480
4/0	19x.1055	5/64	10/64	1.91	3140	3770	7/64	2.13	3500	4200
250	37x.0822	6/64	10/64	2.08	3750	4500	7/64	2.31	4140	4970
300	37x.0900	6/64	10/64	2.20	4350	5220	7/64	2.43	4760	5710
350	37x.0973	6/64	10/64	2.32	4940	5930	7/64	2.54	5370	6450
400	37x.1040	6/64	12/64	2.49	5670	6800	8/64	2.68	6070	7280
450	37x.1103	6/64	12/64	2.58	6240	7490	8/64	2.78	6650	7990
500	37x.1162	6/64	12/64	2.68	6820	8180	8/64	2.87	7250	8690

*Thickness shown for Single Conductor 600 volt is for combined insulation and belt.

ANACONDA TYPE DD DURASEAL AND DURASHEATH CABLE

2001-3000 VOLTS

			DURASHEATH CABLE				DURASEAL CABLE			
Size Awg or Mcm	No. and Diam of Wire or Strands	Insulation Thickness Inch	Rubber Jacket Thick. Inch	Approximate Overall Diameter Inch	Approx. Net Wt. Lbs. Per 1000 Ft.	Approx. Ship. Wt. Lbs. Per 1000 Ft.	Rubber Jacket Thick. Inch	Approximate Overall Diameter Inch	Approx. Net Wt. Lbs. Per 1000 Ft.	Approx. Ship. Wt. Lbs. Per 1000 Ft.
				SINGLE CONDUCTOR						
8	1x.1285	7/64	4/64	0.50	147	176	3/64	0.78	291	349
6	1x.1620	8/64	4/64	0.57	206	247	3/64	0.85	367	440
6	7x.0612	8/64	4/64	0.59	223	268	3/64	0.87	381	457
4	7x.0772	8/64	4/64	0.64	291	349	3/64	0.92	461	553
2	7x.0974	8/64	5/64	0.73	403	485	3/64	0.98	560	672
1	19x.0664	8/64	5/64	0.77	473	568	3/64	1.02	644	773
1/0	19x.0745	8/64	5/64	0.81	558	670	3/64	1.06	747	896
2/0	19x.0837	8/64	5/64	0.85	664	796	3/64	1.11	862	1030
3/0	19x.0940	8/64	5/64	0.91	798	958	4/64	1.19	1030	1240
4/0	19x.1055	8/64	5/64	0.96	958	1150	4/64	1.25	1210	1450
250	37x.0822	9/64	6/64	1.07	1150	1380	4/64	1.33	1400	1680
300	37x.0900	9/64	6/64	1.13	1340	1600	4/64	1.39	1600	1910
350	37x.0973	9/64	6/64	1.18	1510	1820	4/64	1.44	1790	2140
400	37x.1040	9/64	6/64	1.23	1700	2040	4/64	1.49	1980	2380
450	37x.1103	9/64	6/64	1.28	1880	2260	5/64	1.57	2170	2600
500	37x.1162	9/64	6/64	1.32	2050	2460	5/64	1.61	2350	2820
				TWO CONDUCTOR—FLAT						
8	1x.1285	7/64	7/64	1.00x0.63	408	490	5/64	1.26x0.88	583	700
6	1x.1620	8/64	7/64	1.13x0.69	524	629	5/64	1.39x0.94	737	884
6	7x.0612	8/64	7/64	1.18x0.71	574	689	5/64	1.44x0.96	773	928
4	7x.0772	8/64	7/64	1.28x0.76	723	868	5/64	1.54x1.01	935	1120
2	7x.0974	8/64	8/64	1.44x0.85	979	1180	6/64	1.69x1.11	1180	1410
1	19x.0664	8/64	8/64	1.52x0.89	1130	1360	6/64	1.78x1.15	1350	1620
1/0	19x.0745	8/64	8/64	1.60x0.93	1320	1580	6/64	1.86x1.19	1570	1880
2/0	19x.0837	8/64	8/64	1.70x0.98	1540	1850	6/64	1.95x1.23	1810	2170
3/0	19x.0940	8/64	8/64	1.80x1.03	1820	2190	6/64	2.06x1.29	2100	2520
4/0	19x.1055	8/64	10/64	1.99x1.16	2260	2710	7/64	2.21x1.38	2500	3000
250	37x.0822	9/64	10/64	2.15x1.24	2650	3180	7/64	2.37x1.46	2910	3490
300	37x.0900	9/64	10/64	2.26x1.29	3040	3640	7/64	2.49x1.52	3310	3970
350	37x.0973	9/64	10/64	2.37x1.34	3420	4100	7/64	2.59x1.57	3650	4380
400	37x.1040	9/64	12/64	2.53x1.46	3930	4720	8/64	2.72x1.65	4160	4990
450	37x.1103	9/64	12/64	2.62x1.50	4300	5170	8/64	2.81x1.70	4540	5450
500	37x.1162	9/64	12/64	2.70x1.55	4670	5610	8/64	2.90x1.74	4920	5900
				THREE CONDUCTOR						
8	1x.1285	7/64	7/64	1.06	619	743	5/64	1.32	856	1030
6	1x.1620	8/64	7/64	1.21	844	1010	5/64	1.46	1110	1330
6	7x.0612	8/64	7/64	1.26	893	1070	5/64	1.51	1170	1410
4	7x.0772	8/64	8/64	1.39	1170	1400	6/64	1.65	1470	1770
2	7x.0974	8/64	8/64	1.53	1530	1840	6/64	1.78	1810	2180
1	19x.0664	8/64	8/64	1.62	1780	2130	6/64	1.87	2100	2520
1/0	19x.0745	8/64	8/64	1.71	2080	2490	6/64	1.97	2450	2940
2/0	19x.0837	8/64	10/64	1.87	2530	3040	7/64	2.10	2880	3460
3/0	19x.0940	8/64	10/64	1.99	2980	3580	7/64	2.21	3360	4030
4/0	19x.1055	8/64	10/64	2.12	3540	4250	7/64	2.34	3940	4730
250	37x.0822	9/64	10/64	2.29	4180	5010	7/64	2.51	4610	5530
300	37x.0900	9/64	12/64	2.48	4930	5910	8/64	2.67	5320	6390
350	37x.0973	9/64	12/64	2.59	5550	6660	8/64	2.78	5960	7150
400	37x.1040	9/64	12/64	2.69	6180	7420	8/64	2.89	6610	7930
450	37x.1103	9/64	12/64	2.79	6780	8130	8/64	2.98	7220	8660
500	37x.1162	9/64	12/64	2.88	7370	8850	8/64	3.08	7830	9390

ANACONDA TYPE DD DURASEAL AND DURASHEATH CABLE

4001-5000 VOLTS

			DURASHEATH CABLE				DURASEAL CABLE			
Size Awg or Mcm	No. and Diam of Wire or Strands	Insulation Thickness Inch	Rubber Jacket Thick. Inch	Approximate Overall Diameter Inch	Approx. Net Wt. Lbs. Per 1000 Ft.	Approx. Ship. Wt. Lbs. Per 1000 Ft.	Rubber Jacket Thick. Inch	Approximate Overall Diameter Inch	Approx. Net Wt. Lbs. Per 1000 Ft.	Approx. Ship. Wt. Lbs. Per 1000 Ft.
SINGLE CONDUCTOR										
8	1x.1285	10/64	4/64	0.60	205	246	3/64	0.88	356	427
6	1x.1620	10/64	4/64	0.63	251	301	3/64	0.91	409	491
6	7x.0612	10/64	4/64	0.65	264	317	3/64	0.93	427	512
4	7x.0772	10/64	5/64	0.73	351	421	3/64	0.98	510	612
2	7x.0974	10/64	5/64	0.79	458	549	3/64	1.04	627	752
1	19x.0664	10/64	5/64	0.83	533	640	3/64	1.08	710	852
1/0	19x.0745	10/64	5/64	0.87	622	746	3/64	1.13	807	968
2/0	19x.0837	10/64	5/64	0.92	727	872	4/64	1.20	952	1140
3/0	19x.0940	10/64	5/64	0.97	862	1030	4/64	1.26	1100	1320
4/0	19x.1055	10/64	6/64	1.06	1060	1270	4/64	1.32	1280	1530
250	37x.0822	11/64	6/64	1.14	1240	1490	4/64	1.40	1480	1770
300	37x.0900	11/64	6/64	1.19	1420	1700	4/64	1.45	1670	2010
350	37x.0973	11/64	6/64	1.25	1610	1930	4/64	1.51	1870	2240
400	37x.1040	11/64	6/64	1.30	1790	2150	5/64	1.59	2100	2520
450	37x.1103	11/64	6/64	1.34	1970	2360	5/64	1.63	2280	2740
500	37x.1162	11/64	6/64	1.39	2140	2570	5/64	1.68	2470	2960
TWO CONDUCTOR—FLAT										
8	1x.1285	10/64	7/64	1.20x0.72	541	649	5/64	1.45x0.97	741	889
6	1x.1620	10/64	7/64	1.27x0.75	643	772	5/64	1.52x1.00	853	1020
6	7x.0612	10/64	8/64	1.34x0.81	708	850	6/64	1.60x1.06	925	1110
4	7x.0772	10/64	8/64	1.44x0.86	866	1040	6/64	1.70x1.11	1100	1320
2	7x.0974	10/64	8/64	1.57x0.92	1100	1320	6/64	1.82x1.17	1350	1610
1	19x.0664	10/64	8/64	1.65x0.96	1260	1510	6/64	1.91x1.21	1520	1820
1/0	19x.0745	10/64	8/64	1.73x1.00	1450	1740	6/64	1.99x1.25	1720	2070
2/0	19x.0837	10/64	10/64	1.89x1.11	1770	2130	7/64	2.12x1.33	1970	2360
3/0	19x.0940	10/64	10/64	2.00x1.16	2070	2480	7/64	2.22x1.39	2310	2770
4/0	19x.1055	10/64	10/64	2.12x1.22	2420	2910	7/64	2.34x1.45	2680	3220
250	37x.0822	11/64	10/64	2.28x1.50	2830	3390	7/64	2.50x1.53	3100	3720
300	37x.0900	11/64	12/64	2.45x1.42	3340	4010	8/64	2.65x1.61	3570	4280
350	37x.0973	11/64	12/64	2.56x1.47	3730	4480	8/64	2.75x1.67	3970	4770
400	37x.1040	11/64	12/64	2.66x1.52	4140	4970	8/64	2.85x1.71	4380	5260
450	37x.1103	11/64	12/64	2.75x1.57	4520	5420	8/64	2.94x1.76	4770	5720
500	37x.1162	11/64	12/64	2.83x1.61	4900	5870	8/64	3.03x1.80	5150	6180
THREE CONDUCTOR										
8	1x.1285	10/64	7/64	1.27	847	1020	5/64	1.53	1130	1350
6	1x.1620	10/64	8/64	1.38	1050	1250	6/64	1.64	1350	1620
6	7x.0612	10/64	8/64	1.43	1100	1320	6/64	1.69	1420	1700
4	7x.0772	10/64	8/64	1.53	1360	1630	6/64	1.79	1700	2030
2	7x.0974	10/64	8/64	1.67	1740	2080	6/64	1.93	2100	2520
1	19x.0664	10/64	8/64	1.76	2000	2400	6/64	2.01	2380	2590
1/0	19x.0745	10/64	10/64	1.91	2400	2880	7/64	2.14	2580	3310
2/0	19x.0837	10/64	10/64	2.01	2790	3340	7/64	2.24	3160	3790
3/0	19x.0940	10/64	10/64	2.13	3250	3910	7/64	2.35	3650	4380
4/0	19x.1055	10/64	10/64	2.26	3830	4600	7/64	2.48	4250	5100
250	37x.0822	11/64	12/64	2.49	4610	5530	8/64	2.69	5010	6010
300	37x.0900	11/64	12/64	2.61	5260	6310	8/64	2.81	5680	6810
350	37x.0973	11/64	12/64	2.73	5860	7030	8/64	2.92	6330	7600
400	37x.1040	11/64	12/64	2.83	6550	7860	8/64	3.03	7000	8390
450	37x.1103	11/64	12/64	2.92	7160	8590	8/64	3.13	7620	9140
500	37x.1162	11/64	12/64	3.02	7760	9310	8/64	3.22	8240	9880

ANACONDA SHAFT CABLES FOR MINES

Because of the increasing trend toward mine mechanization, with the resulting increase in electrical machinery, mine operators are becoming more and more dependent upon their main power cables for safe, continuous operation of their underground equipment. Each installation of a main power cable going underground, through a shaft or through a borehole, must be considered individually. For this reason, no attempt is made here to recommend a particular type of cable for this service. The following data, however, will point out the various types of cable available for this use, and it is recommended that a reliable manufacturer be consulted, such as Anaconda, who has had years of experience in supplying shaft cables for its own needs.

Shaft and borehole cables are divided into two classes, namely, metallic armored and non-metallic armored. In making underground power cable installations, particularly for use above 550 volts; the mining laws of the state where the installation is to be made should be consulted. Some states permit only the use of metallic armored cables, except for low voltages, in which case either type might be acceptable. On shaft cable, borehole cable and cable installations along a drift, for use at 2300 volts and above, a metallic shielding over the insulation should be used on cables insulated with rubber and without metallic covering. Shielding may also be desired on this type of cable for less than 2300 volts when connected to overhead lines. Recommendations should also be secured relative to the advisability of including ground wires in these cables.

METALLIC SHAFT CABLES

One type of metallic shaft cable is known as **RLJW**. This cable is built in either single or multiple conductor, although multiple conductor is by far the most common. In this cable the copper conductors are insulated with a rubber compound designed to fit the required condition; with colored tapes over each conductor for polarity identification; saturated jute fillers are laid in the cable interstices; a tape binder is placed over the cabled conductors; then a lead sheath is applied, over which is laid a serving of saturated jute to act as a bedding for outer covering of steel wire armor.

Under certain conditions a rubber insulated, non-leaded cable, Type **RJW**, may be used.

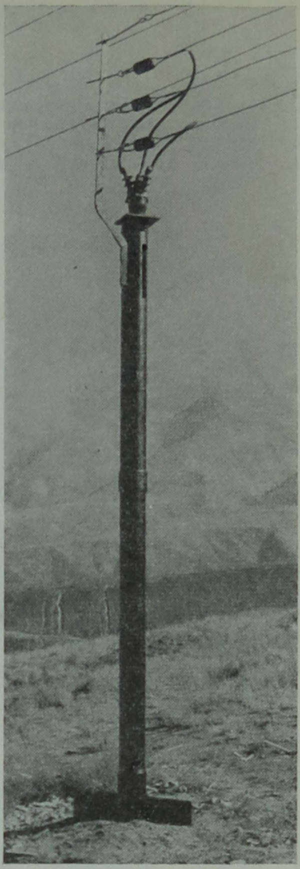
Another type of metallic armored shaft cable is known as **VCLJW**. This cable is built just like Type **RLJW**, except that varnished cambric insulation is used in place of the rubber insulation. In view of the higher operating temperature of varnished cambric insulation over rubber insulation, Type **VCLJW** has a higher current rating than Type **RLJW** for a given copper size.

NON-METALLIC SHAFT CABLES

In the case of non-metallic shaft cables and borehole cables, many different constructions are available and have been used. However, great care must be taken in specifying a non-metallic shaft or borehole cable in order to insure a reliable installation. One non-metallic cable which has proven its reliability for mine power feeder use is Anaconda Type **DD** Duraseal, which is described on a preceding page. This cable can be used either as a shaft cable, or as a borehole cable in conjunction with the Anaconda Suspension Unit described on this page, where the entire weight of the cable is supported from the pothead by the cable conductors themselves.

For borehole installations, Anaconda also manufactures a type consisting of rubber insulated conductors with a saturated treated loom covering, known as Duracord covering.

ANACONDA SUSPENSION UNIT
FOR BOREHOLE CABLE



Installation of three-conductor Suspension Unit and Cable of International Smelting & Refining Co., Tooele, Utah.

Designed to terminate, seal and support vertical riser cables of 110 volts and over for conductor sizes of Number 6 Awg. to 2,000,000 cm without the use of armor wires to carry the cable weight.

The unit consists of an Everdur mounting plate, a special Anaconda Pothead with bronze top casting, rugged porcelain insulator in compression. Anaconda Seamless Drawn Connector stem parts, held in place by hoodnuts threaded with Dardelet self-locking threads.

The cable is especially designed for riser service. It consists of hard or medium hard drawn tinned copper conductors, long aging insulation and the Duracord loom-woven cover.

The suspension end is completely prepared with seamless connectors which are designed to develop a pull-out strength several times the total weight of the cable and are attached at the mill.

Complete engineering data for specific riser or borehole cable problems supplied on request.

ARMORED SHAFT OR BOREHOLE CABLES

Anaconda steel armored cables are recommended for the following installations:

1. If the weight of the cable is in excess of the safe tensile strength of its copper conductors.
2. If the borehole is not cased and the cable is subject to crushing by slides or moving ground.
3. If the cables are installed in a general shaft and subject to slides, falling rocks or spill of ore, rock, or coal from the cages.
4. If armored cables are specified by Federal, State or Local Codes.

The armored cables are constructed similar to submarine cables. The insulation on the individual conductors consists of either rubber or varnished cambric. A lead sheath is required if varnished cambric insulation is specified. The lead sheath can be omitted when rubber insulation is used.

A saturated jute bedding is applied directly under the galvanized steel armor wire. The armor wire is spirally wound and forms the protective outer covering.

For those applications where the cables are subjected to severe acid conditions, the galvanized steel armor wires can be furnished with a coating of lead over each wire.

Since conditions vary for different installations, consult our nearest office for recommendations, giving full particulars.

ANACONDA SERVICE ENTRANCE CABLE

FACTS ABOUT SERVICE CABLES

One of the major developments of the last number of years with respect to house wiring has been the introduction of service cable. In spite of the large amount of it which is being installed, there is still considerable uncertainty on the part of members of the industry as to the characteristics of the different types and their proper application.

Service Cable is made in four different types designated by Underwriters as follows:

1. SD or service drop cable.
2. SE or service entrance cable.
3. ASE or armored service entrance cable.
4. USE or underground service cable.

With the exception of type USE. or underground service cable, most service cable is made with a concentric bare neutral. All insulated wires are Performance Grade rubber-insulated, weatherproof braided.

A cellophane serving is placed over the braid, on all service cables, for easy side bending. The cellophane is colored for color coding and it prevents the spreading and drying of saturants.

The factors which influence the type of cable to be used for a given installation are:

1. Economy.
2. Whether the location of the cable may cause it to be subjected to accidental injury.
3. Whether the distance from the pole to the house would offer too large a span for the cable to enable it to be self-supporting.
4. Whether the type of residence or location is of such nature as to make the entrance by underground more desirable than by aerial cable.
5. Local regulations.

The essential differences in the four types of cable are as follows:

1. SD cable: This cable, instead of a flame-retarding braid, has a weather-resisting cotton braid. Type SD cable should be used from the pole to the weather-head and, if used down the house, must be protected by conduit or metallic tubing.
2. SE Cable: This cable is designed for use in protected locations down the side of the house and attached directly to it without insulators. It has a moisture resisting and flame-retarding braid and may be used for range wiring.
3. ASE Cable: This is the only type that can be used in unprotected locations without additional mechanical protection. It is essentially an armored cable. It is generally constructed with combination of special heavy fibrous and steel covering designed to resist impact.
4. USE Cable: This is distinctly an underground cable with several layers of protective covering to keep out moisture, acids and alkalies. Anaconda Duraseal is approved by the Underwriters for this use.

Styles of Service Cables

Besides these essential differences between types, both the SD and SE types are made in several different constructions or styles.

SD Cable is made in two styles:

1. Style C for 2-conductor cable.
2. Style CF for 3-conductor cable.

The differences are as follows:

Style C cable has one insulated conductor with a concentric bare neutral that covers approximately 85 per cent of the insulated conductor.

Style CF has two insulated conductors but the neutral covers approximately 65 per cent of the conductors.

When we come to SE cable we have four different styles as follows:

1. Style SC for 2-conductor.
2. Style SCF for 3-conductor.
3. Style SC-100 for 2-conductor 100 per cent tamperproof cable.
4. Style SCF-100 for 3-conductor 100 per cent tamperproof cable.

The differences are as follows:

Style SC cable might be considered basic for this type. It has a single insulated conductor with a concentric bare neutral covering 85 per cent of the insulated conductor.

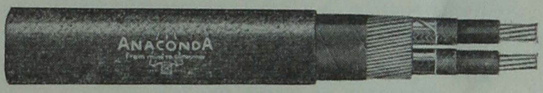
Style SC-100 differs from Style SC only in that a flat copper strip is wound between the insulated conductor and the neutral to more effectively prevent tampering with the current carrying conductors.

Style SCF differs from Style SC only in the use of an additional insulated conductor and the fact that the neutral need cover only 65 per cent of the insulated conductors.

Style SCF-100 is the same as SCF with the tamperproof copper tape between the insulated conductor and the neutral.

SERVICE ENTRANCE CABLES

Two Conductor—Type C



Three Conductor—Type CF

Two Conductor—Type SC

Three Conductor—Type SCF

Two Conductor—Type SC-100

Three Conductor—Type SCF-100

ANACONDA SERVICE DROP CABLE

UNDERWRITERS APPROVED TYPE SD

Conductors and Insulation—This type cable is available in two- and three-conductor assemblies, one of the conductors uninsulated. The uninsulated conductor consists of a serving of soft tinned, round copper wires. Conductors are insulated with Performance Type Rubber Compound, cotton braid, saturated with moisture-resisting compound, then covered with colored cellophane for coding and moisture resistance.

Two-conductor cables, Type C, are made by concentrically serving round soft tinned copper wires over the insulated conductor.

Three-conductor cables, Type CF, has the two insulated conductors parallel. The conductors are easily identified by a colored cellophane wrapping which also serves to resist moisture. Type CF is concentrically served with round, soft tinned copper wires.

Protective Covering—Over this assembly is placed a fibrous tape and a closely woven braid of heavy cotton, saturated with URC type weather-resisting compound and finished with the standard URC type black finishing compound.

The URC type finish is applied in a concentric layer of adequate thickness to protect the braid from the weathering elements for a long period of time. These cables may be painted after installation without injury to the cable, and without paint dripping from the cable surface. The cover holds paint well, but nothing need be added to improve the appearance of this cable.

In some communities special permission has been obtained to use these cables from pole to meter without the use of conduit.

TWO-CONDUCTOR—TYPE C

Size Awg. Insulated	Size Awg. Uninsulated Neutral	Insula. Thickn. 64ths	Overall Diam. of Cable Inch	Approx. Net Wt. Lbs. per M Ft.	*Stand. Reel Lgth. Feet	+K.O. Size Inches
Solid Insulated Conductors						
**12	12	3	.300	80	1000	¾
10	10	3	.330	110	1000	¾
Stranded Insulated Conductors						
8	8	4	.410	170	1000	¾
6	6	4	.460	240	1000	¾
4	4	4	.530	350	1000	¾
2	2	4	.610	530	500	1
1	1	5	.690	670	500	1

THREE-CONDUCTOR—TYPE CF

Solid Insulated Conductors						
**12	12	3	.320 x .490	140	1000	¾
10	10	3	.350 x .540	170	1000	¾
Stranded Insulated Conductors						
8	8	4	.430 x .690	290	1000	¾
6	8	4	.490 x .790	360	500	1
6	6	4	.490 x .790	390	500	1
4	6	4	.560 x .900	500	500	1
4	4	4	.570 x .910	580	500	1
2	4	4	.650 x 1.030	780	500	1¼
2	2	4	.660 x 1.040	830	500	1¼
1	3	5	.750 x 1.220	960	500	------
1	1	5	.760 x 1.230	1050	500	------

*500 ft. reels or coils can be furnished if desired.

**No. 12 Awg. Insulated Conductors are Medium-Hard Drawn Copper.

Sizes larger than No. 12 are soft drawn copper.

+K.O. represents Knock-out plug size.

All dimensions conform to IPCEA and are subject to commercial tolerance + or — 30 mils.

ANACONDA SERVICE ENTRANCE CABLE

UNDERWRITERS APPROVED TYPE SE

Conductors and Insulation—This type of cable is available in two- and three-conductor assemblies, one of the conductors uninsulated. The uninsulated conductor consists of a serving of soft tinned round copper wires. Conductors are insulated with Performance Type Rubber Compound, cotton braided, saturated with moisture-resisting compound, and covered with colored cellophane for easy identification and for moisture resistance.

Two-conductor cables, Types SC, are made by concentrically serving round, soft tinned, copper wires over the insulated conductor.

Three-conductor cables, Type SCF, has the two insulated conductors parallel. The conductors are easily identified by a wrapping of colored cellophane over the braid. Type SCF is concentrically served with round soft tinned copper wires.

Protective Covering—This assembly is then covered with self-vulcanizing tapes and a closely woven heavy cotton braid, saturated with URC type weather-resisting compound.

The self-vulcanizing tapes over the concentric serving are so vulcanized together and to the braid, during the saturation of the braid, as to provide a homogeneous moisture-sealed sheath. The gray URC type finish is applied in a concentric layer of adequate thickness to protect the braid from the weathering elements for a long period of time. These cables may be painted after installation without injuring the cable, and without paint dripping from the cable surface.

TWO-CONDUCTOR—TYPE SC

†Size Awg. Insulated	†Size Awg. Uninsulated Neutral	Diameter Overall Inches	Approx. Net Wt. Lbs. per 1000 Ft.	Standard Coil Lgth. Feet .	+K.O. Size Inches
**12	12	.361	90	250	¾
10	10	.388	120	250	¾
8	8	.475	180	250	¾
6	6	.537	250	250	¾
4	4	.601	370	200	1
2	2	.683	540	150	1
1	1	.720	680	150	1

THREE-CONDUCTOR—TYPE SCF

**12	12	.393 x .515	150	250	¾
10	10	.432 x .585	190	250	¾
8	8	.512 x .740	300	250	¾
6	8	.556 x .828	380	200	1
6	6	.569 x .841	400	150	1
4	6	.617 x .937	520	150	1
4	4	.625 x .945	600	150	1
2	4	.685 x 1.060	790	100	1¼
2	2	.703 x 1.080	850	100	1¼
1	3	.780 x 1.250	970	100	------
1	1	.790 x 1.260	1070	100	------

†Sizes 10 and smaller are solid; sizes 8 and larger are stranded unless otherwise specified.

‡Sizes 10 and smaller have 3/64ths rubber insulation, sizes 8 to 2 inclusive have 4/64ths rubber insulation. No. 1 and larger have 5/64ths rubber insulation.

+K.O. represents knockout plug sizes.

**No. 12 Awg. insulated conductors are medium-hard drawn copper. Sizes larger than No. 12 are soft drawn copper.

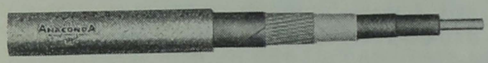
ANACONDA SERVICE ENTRANCE CABLE

UNDERWRITERS APPROVED TYPE SE

Conductors and Insulation—This type of cable is available in two- and three-conductor assemblies, one of the conductors uninsulated. The uninsulated conductor consists of a concentrically wound serving of soft tinned round copper wires. Conductors are insulated with Performance Type Rubber Compound, covered with a cotton braid saturated with a moisture-resisting compound then covered with colored cellophane for identification and moisture resistance. Two-conductor cables have a tinned copper tape applied over the insulated conductor over which is applied the uninsulated conductor. In three-conductor cables, the insulated conductors are laid parallel, and copper tape then applied.

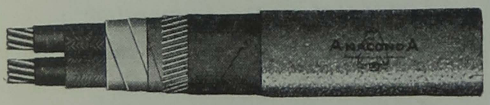
Protective Covering—This assemby is then covered with self-vulcanizing tapes and a closely woven heavy cotton braid, saturated with URC type weather-resisting compound. The self-vulcanizing tapes over the concentric serving are so vulcanized together and to the braid, during saturation of the braid, as to provide a homogeneous moisture-sealed sheath. The gray URC type finish is applied in a concentric layer of adequate thickness to protect the braid from weathering elements for a long period of time. This cable may be painted after installation without injury to the cable or paint dripping from the cable surface.

TWO-CONDUCTOR—TYPE SC-100



†Size Awg. Insulated	†Size Awg. Uninsulated Neutral	Diameter Overall Inches	Approx. Net Wt. Lbs. per 1000 Ft.	Standard Coil Lgth. Feet	+K.O. Size Inches
**12	12	.361	100	250	¾
10	10	.388	130	250	¾
8	8	.475	190	250	¾
6	6	.537	270	250	¾
4	4	.601	380	200	1
2	2	.683	560	150	1
1	1	.720	700	150	1

THREE-CONDUCTOR—TYPE SCF-100



**12	12	.343 x .525	160	250	¾
10	10	.432 x .585	200	250	¾
8	8	.512 x .740	320	250	¾
6	8	.556 x .828	400	200	1
6	6	.569 x .841	420	150	1
4	6	.614 x .937	540	150	1
4	4	.625 x .945	620	150	1
2	4	.685 x 1.060	820	100	1¼
2	2	.703 x 1.080	880	100	1¼
1	3	.780 x 1.250	1000	100	------
1	1	.790 x 1.260	1100	100	------

†Sizes 10 and smaller are solid, sizes 8 and larger are stranded unless otherwise specified.

‡Sizes 10 and smaller have 3/64ths rubber insulation, sizes 8 to 2 inclusive have 4/64ths rubber insulation. No. 1 and larger have 5/64ths rubber insulation.

+K.O. represents knock-out plug sizes.

**No. 12 Awg. insulated conductors are Medium-Hard Drawn Copper.

Sizes larger than No. 12 are soft drawn copper.

All dimensions conform to IPCEA and are subject to commercial tolerance of + or — 30 mils.

ANACONDA SERVICE ENTRANCE CABLE

UNDERWRITERS APPROVED TYPE SE

Style SC-FA and SCF-FA entrance cables have either one or two insulated inner conductors over which is laid a tinned concentric uninsulated conductor then a flat galvanized steel tape in direct contact all protected by heavy moisture-proof coverings.

Inner conductors, No. 8 A.W.G. and larger are stranded, smaller than No. 8 A.W.G. are solid, tinned copper wire, insulated with A.S.T.M. Performance grade rubber compound, enclosed in single weatherproofed cotton braid. In three-conductor cables, one inner conductor braid has a raised tracer for identification and the two inner insulated conductors are laid parallel. The outer conductor is formed of tinned copper wires concentrically applied around the inner conductor or conductors. One or more flat galvanized steel tapes approximately .015 inches thick and ¼ inch wide made by wrapping over the uninsulated conductor with a spacing of approximately 1/16 inch between adjacent turns. Overall is a rubberized jacket consisting of special self-vulcanizing tapes and a substantial U.R.C. weatherproofed braid. Gray U.R.C. finish is standard on stocks.

All dimensions shown are IPCEA standards and are subject to a plus or minus manufacturing tolerance of .030 inch.

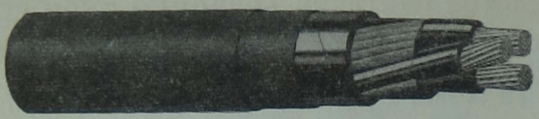
TWO-CONDUCTOR—STYLE SC-FA

Size Awg Insulated	Size Awg Uninsulated Neutral	Approx. O.D. Inches	Approx. Shpg. Wt. Lbs. Per 1000 Ft.	Standard Coil Lengths
12	12	.391	120	250
10	10	.420	130	250
8	10	.495	220	250
8	8	.505	240	250
6	8	.549	290	250
6	6	.567	320	250
4	6	.615	400	200
4	4	.631	450	200
2	4	.691	570	150
2	2	.713	650	150

THREE-CONDUCTOR—STYLE SCF-FA

12	12	.429x .546	200	250
10	12	.440x .570	230	250
10	10	.462x .600	250	250
8	10	.525x .735	340	250
8	8	.542x .755	360	250
6	8	.586x .843	450	200
6	6	.599x .856	490	150
4	6	.647x .952	630	150
4	4	.655x .960	690	150
2	4	.715x1.08	890	100
2	2	.733x1.10	990	100

ANACONDA VARNISHED-CAMBRIC INSULATED CABLE



Belted Type Cable, double-braid covering with smooth black finish.

Application

Varnished-cambric cable is particularly adaptable to the power requirements of industrial plants and factories where numerous short runs, joints, and sharp bends are involved. The flexibility, ease of splicing, and resistance to rough handling, of varnished-cambric cable, greatly facilitates its installation under such conditions.

Because varnished-cambric insulation is nonhygroscopic, it can be used with a braid covering instead of lead sheath in industrial plants, central stations, and other locations where dry conditions prevail. Braid-covered, varnished-cambric insulated cable is widely used for generator leads and transformer leads where its resistance to oil is also an appreciable factor. If the location of the cable is unusually damp or wet, the cable must be encased in a lead sheath.

Design

The conductors of varnished-cambric insulated cable are generally concentrically stranded and at present are furnished only with a circular shaped cross-section. At high currents, the skin effect of concentric stranded cable becomes appreciable, and, therefore, it is advisable to use annular conductor of larger diameter for conductor sizes 750,000 c.m. and larger. The reduction in skin effect obtained by the use of annular conductors can readily be noted. The core of the annular conductor may be formed by either a fibrous rope or Anaconda twisted I-beam.

For three-phase power applications, either single-conductor or three-conductor cable is used. The latter may be furnished with part of the insulation applied as a belt over the cabled conductors (belted) or with all the insulation on the individual conductors (non-belted). Non-belted cable generally has a shielding tape on the individual conductors and is used for higher voltages. Shielding of individual conductors is necessary at high voltages to provide a symmetrical distribution of voltage stress throughout the insulation.

Protective Coverings

Varnished-cambric insulation is generally protected by a braid, lead sheath, or rubber jacket. Some of the various coverings in use today are listed below under the classification of metallic and non-metallic coverings When metallic coverings are used for single-conductor cables, which are a part of polyphase circuits, some consideration must be given to the circulating current induced in the metallic covering. This current can be controlled by suitable bonding methods, and proper selection of the metallic covering.

Metallic Coverings:
- Pure lead
- Alloy lead
- Flat metal tape
- Round wire armor
- Basket weave armor

Non-Metallic Coverings:
- Mica coated pitch and asphalt finished braid
- Slow-burning paint filled and finished braid
- Loom weave
- Reinforced R. jacket
- Impregnated jute

ANACONDA TREE WIRE

A.S.A DURACORD TYPE

Construction—Over the medium hard drawn, tinned copper conductor is applied a wall of A.C.R. (Anaconda Corona Resisting) compound to recommended I.P.C.E.A. thicknesses as outlined below, a rubber filled tape and a heavy specially constructed and specially treated Duracord loom woven covering to provide high resistance to abrasion and weathering.

Abrasion Test—Samples of Anaconda Duracord Tree Wire are periodically taken from the production line to undergo an abrasion test. The sample is held under tension while it is rubbed in a back and forward motion with a knotted, round, maple stick, similar to the rubbing of a tree branch as it sways in the wind. Occasionally, water is added to simulate rain conditions. Each back-and-forth motion is called a cycle, and Duracord Tree Wire withstands millions of cycles before failure.

The tests are made under the standards prescribed by the American Standards Association.

Single Conductor—1000 to 8000 Volts

Solid

Size A.W.G.	Rubber Wall In.	Approx. O.D. Inches	Approx. Shpg. Wt. 1000 Ft.	Size A.W.G.	Rubber Wall In.	Approx. O.D. Inches	Approx. Shpg. Wt. 1000 Ft.
10	3/64	.600	122	6	7/64	.780	281
8	4/64	.660	181	6	8/64	.810	304
8	5/64	.690	202	6	9/64	.850	327
8	6/64	.720	221	6	10/64	.880	351
8	7/64	.750	241	4	4/64	.730	303
8	8/64	.780	261	4	5/64	.760	322
8	9/64	.820	282	4	6/64	.790	345
8	10/64	.850	304	4	7/64	.820	372
6	4/64	.690	220	4	8/64	.850	398
6	5/64	.720	244	4	9/64	.890	422
6	6/64	.750	263	4	10/64	.920	440

INSULATION THICKNESSES

I.P.C.E.A. Recommended

*Rated Circuit Voltage	For Use on Insulators Cond. Size A.W.G.	For Use on Insulators Thickness of Rubber Neu. Gr'd	For Use on Insulators Thickness of Rubber Neu. Ungr'd	Not on Insulators Cond. Size A.W.G.	Not on Insulators Thickness of Rubber Neu. Gr'd	Not on Insulators Thickness of Rubber Neu. Ungr'd
0–600	10	3/64	3/64	10	3/64	3/64
	8–2	4/64	4/64	8–2	4/64	4/64
	1–4/0	5/64	5/64	1–4/0	5/64	5/64
601–1000				8	4/64	4/64
	8	6/64	4/64	7–2	5/64	5/64
	7–4/0	5/64	5/64	1–4/0	6/64	6/64
1001–2000				8	5/64	5/64
	8–4/0	5/64	5/64	7–2	6/64	6/64
				1–4/0	7/64	7/64
2001–3000	8–4/0	5/64	5/64	8	7/64	7/64
				7–4/0	8/64	8/64
3001–4000	8–4/0	5/64	5/64	8–4/0	9/64	9/64
4001–5000	8–4/0	5/64	5/64	8–4/0	10/64	10/64
5001–6000	8–4/0	6/64	8/64	8–4/0	10/64	12/64
6001–7000	8–4/0	7/64	....	8–4/0	11/64	14/64
7001–8000	8–4/0	8/64	....	8–4/0	12/64	16/64

*The rated circuit voltage is the voltage between phases for polyphase power circuits.

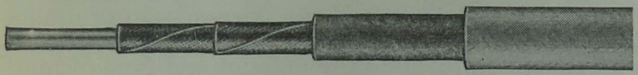
ANACONDA SLOW-BURNING WIRE

TRIPLE BRAID WIRE

Size A.W.G.	Finished Wght. Lbs. Per 1000 Ft.	Finished Wght. Lbs. Per Mile	Standard Packings On Reels Feet	Standard Packings On Reels Lbs.	Standard Packings In Coils Feet	Standard Packings In Coils Lbs.
4/0	925	4884	2000	1850	400	370
3/0	760	4013	3000	2280	500	380
2/0	600	3168	3000	1800	600	360
1/0	495	2614	4000	1980	700	347
1	405	2238	1000	405	900	365
2	320	1690	1000	320	1100	352
3	265	1399	2000	530	1500	398
4	220	1162	2000	440	1000	220
5	190	1003	3000	570	1200	228
6	160	845	3000	480	1350	216
8	100	528	4000	400	2000	200
10	75	396	-------	-------	-------	-----
12	55	290	-------	-------	-------	-----
14	40	211	-------	-------	-------	-----

ROCKBESTOS WIRES

ROCKBESTOS A.V.C.
600-VOLT SWITCHBOARD WIRE—Table B

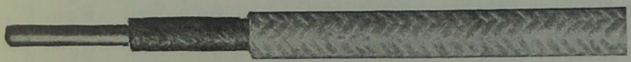


U. S. Pat. No. 1,840,282—1,861,404

Rockbestos Switchboard Wire looks like the ordinary multi-layer varnished cambric type, but because it is insulated with the combination of asbestos and varnished cambric it has the added feature of being absolutely flame-proof. It makes a fine appearance, has ample dielectric strength for panel board work, and the outer braid will not crack or split open when sharp right angle bends are made during the wiring of the board. Approved by the Underwriters' Laboratories for use on switchboards and for other wiring.

Size A.W.G. Tinned	Bare Diam. Inches	Approx. Finished Diam. Inches	Approx. Net Weight per M. Ft. Pounds	Standard Shpg. Lengths (Ft.) Coils	Standard Shpg. Lengths (Ft.) Reels
8	.128	.270	82	500	1000
10	.102	.245	59	500	1500
12	.081	.225	44	500	2000
14	.064	.205	34	500	2500
16	.051	.195	27	1000	2500
18	.040	.180	23	1000	3000

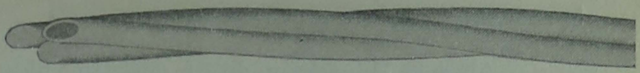
ROCKBESTOS 300-VOLT ALL-ASBESTOS STOVE WIRE—Table AC



Rockbestos Stove Wire with either solid, stranded or flexible conductor is widely used in cookers, hotplates, ovens, ranges, and other electrical heating devices. Black, white, red, grey, and blue braids.

Size A.W.G.	Bare Diam. Inches	Approx. Finished Diam. Inches	Approx. Net Weight per M. Ft. Pounds	Standard Shpg. Lengths (Ft.) Coils	Standard Shpg. Lengths (Ft.) Reels
8	.128	.280	78	500	1000
10	.102	.255	56	1000	2000
12	.081	.235	43	1000	2000
14	.064	.220	33	1000	2000
16	.051	.205	27	1000	2000
18	.040	.195	23	1000	3000

ANACONDA COPPER-COPPERWELD COMPOSITE CABLE



Copperweld composite cable utilizes an extra high strength Copperweld wire combined with two copper wires and is designed for use where maximum span lengths can be attained. The irregular cross-section of three wire composite cables minimizes conductor vibration. This fact contributes to their value in long span construction.

Copperweld wire and cable also are available either bare or with weatherproof covering. These conductors have their principle application where loads are unusually small.

Physical and Electrical Properties of Copper-Copperweld Composite Cable

Design No.	Conductivity Equivalent to H.D. Copper Awg.	Conductivity Equivalent to H.D. Copper Cir. Mils	No. of Wires	Wire Dia. In.	Over-all Dia. In.	Wt. Lbs. per 1000 Ft.	Breaking Str. Lbs.	†Std. Pack. Reels, Feet
2A	2	66370	2 1	.1699 .1699	.366	256.8	5876	2300
3A	3	52630	2 1	.1513 .1513	.326	203.6	4810	3000
4A	4	41740	2 1	.1347 .1347	.290	161.5	3938	3800
5A	5	33100	2 1	.1200 .1200	.258	128.1	3193	4800
6A	6	26250	2 1	.1068 .1068	.230	101.6	2585	6000
7A	7	20820	2 1	.0895 .1266	.223	93.66	2754	4200
8A	8	16510	2 1	.0797 .1127	.199	74.27	2233	5400
8C	8	16510	2 1	.08336 .08081	.179	60.67	1362	8200
9½D	9½	11750	1 2	.08081 .08081	.174	56.46	1743	8900

†Or Coils of ½, ⅓ or ¼ Standard Reel Lengths. All lengths approximate. 10% of Reel lengths may be random.

TINNED STEEL ARMATURE BINDING WIRE

American Gauge (B. & S.)	Diam. In.	Actual Tensile Strength in Pounds Grade A	Grade B	Grade C1 or Special	Grade C2 or C
10	.1019	938	1,631	1,957	2,447
11	.0907	743	1,292	1,551	1,938
12	.0808	590	1,026	1,231	1,538
13	.072	468	814	977	1,221
14	.0641	371	645	774	968
15	.0571	294	512	615	767
16	.0508	233	405	486	608
17	.0453	185	322	387	484
18	.0403	147	255	306	383
19	.0359	116	202	243	304
20	.032	92.5	181	193	241
21	.0285	73.4	128	133	191
22	.0253	57.8	101	121	151
23	.0226	46.1	80.2	88.3	120
24	.0201	30.5	63.5	76.2	95.2
25	.0179	28.9	50.5	60.4	75.5
26	.0159	22.8	39.7	47.7	59.6

Grade A—Used to bind Armatures of small motors and dynamos.

Grade B—For motors and dynamos of ordinary commercial size and speed.

Grade C1 or Grade Special—Used where great strength is required.

Grade C2 or Grade C—Used when very high tensile strength is required, as on motors and dynamos of unusual size and high speed.

Spools weigh 10, 25 and 50 pounds. In coils, 5 to 75 pounds. Prices upon application.

ANACONDA VITROTEX MAGNET WIRE

Vitrotex Magnet Wire is made by covering bare or enamel wires with an inorganic textile insulation manufactured from alkali-free glass. The textile is soft and lustrous and extremely flexible. Individual fibers are very small in diameter (.0002"), of great length and compare favorably with steel in tensile strength. Vitrotex Magnet Wires are made in the following forms:

Single Vitrotex Covered (SVC); Bare copper wire with one serving of Vitrotex yarn.

Double Vitrotex Covered (DVC); Bare copper wire with two servings of Vitrotex yarn.

Single Vitrotex Enamel (SVE); Plain enamel wire with one serving of Vitrotex yarn.

Double Vitrotex Enamel (DVE); Plain enamel wire with two servings of Vitrotex yarn.

The glass fiber is applied to the wire in the same manner as cotton. Servings are bonded to the wire with a special compound, making the wire smooth and resistant to abrasion. Vitrotex wires are available in round, square and rectangular shapes.

Heat Resistance—Vitrotex Magnet Wires are exceptional in their ability to withstand comparatively high temperatures for long periods of time. The safe operating temperature is greatly in excess of other insulations. The precise temperature limits which may be set will depend largely on experience gained in the use of the material. Test coils wound with Vitrotex have been operated continuously for over five months at 525 degrees F. without failure of the winding.

Heat Conductivity—Vitrotex Magnet Wires have good heat conductivity as the glass fibers are excellent heat conductors.

Dielectric Strength—The dielectric strength of Vitrotex compares favorably with any of the usual magnet wire insulations. At increased temperatures, Vitrotex Magnet Wires will retain sufficiently high dielectric strength to operate satisfactorily at temperatures above destruction point of cotton, silk, paper and similar insulation. At high relative humidity, Vitrotex Wires retain their dielectric strength to a marked degree.

Insulation Resistance—Vitrotex Magnet Wires, possess high insulation resistance throughout a wide temperature range and under highly humid conditions.

Space Factor—Vitrotex Magnet Wires possess remarkable space factors, especially in view of their ability to withstand high operating temperatures. Single Vitrotex has approximately the same space factor as Double Silk of equal gauge. Double Vitrotex has a space factor better than Double Cotton wires.

Vitrotex Wires mesh better and the winding expands no more than any other wire so that no special precautions are necessary in designing a winding.

The fact that Vitrotex Wires have such an excellent space factor combined with their high insulating qualities, especially at high operating temperatures, is of great importance to the designer and user. It makes possible the reduction in size of the devices in which the wire is used, without danger of failure due to high operating temperature, or it makes possible an increase in output by substituting Vitrotex for other insulations.

ANACONDA VITROTEX MAGNET WIRE

Power Factor—If the power factor of an insulation is approximately constant through even a small temperature range it indicates stability for the insulation. Vitrotex wires exhibit this constancy.

Impregnation—Windings made with Vitrotex Magnet Wires can be completely impregnated with varnish or other compounds. This impregnation is easy to accomplish by standard methods. The necessary baking can be done at temperatures that would destroy ordinary insulations. This property is an important advantage. While the glass fibers will not absorb liquds or compounds, the insulated wire will take up and strongly retain the desired compound. Therefore great latitude in designing is obtained.

Winding and Handling Methods—No special precautions other than the usual careful and prudent treatment which should be given any magnet wire is necessary. Vitrotex Magnet Wires can be wound on any equipment that will do a satisfactory job with any other magnet wire.

Dimensions—In general, the overall dimensions of Vitrotex Magnet Wire, including bonding, are somewhat smaller than the corresponding dimensions of cotton covered wires, but will vary somewhat depending upon the amount and type of binding used. However, in no case will the maximum dimensions of Vitrotex wire exceed the maximum dimensions of the comparable cotton covered wire, i.e.:

Single Cotton Covered as compared to Single Vitrotex Covered;

Single Cotton Enamel as compared to Single Vitrotex Enamel;

Double Cotton Covered as compared to Double Vitrotex Covered;

Double Cotton Enamel as compared to Double Vitrotex Enamel.

NYLON ENAMELED MAGNET WIRE

Anaconda now manufactures Nylon Enameled Magnet Wire, which has outstanding abrasive resisting qualities, and a distinct advantage over textile, or paper, covered enameled wire where space factor is concerned.

SQUARE MAGNET WIRE

DOUBLE COTTON COVERED

Size B. & S.	Nominal Diam. Bare	Insulation Increase	Overall Diam.	Feet per Lb.	Lbs. to Reel	Dia. Reel In.	Traverse In.
4/0	.460	.022	.482	1.22	250	28	6
3/0	.410	.022	.432	1.54	250	28	6
2/0	.365	.022	.387	1.94	250	28	6
1/0	.325	.022	.347	2.43	250	28	6
1	.2893	.022	.3113	3.06	250	24	6
2	.2576	.022	.2796	3.867	250	24	6
3	.2294	.022	.2514	4.875	250	24	6
4	.2043	.022	.2263	6.15	250	24	6
5	.1819	.020	.2019	7.75	250	24	6
6	.162	.020	.182	9.71	250	24	6
7	.1443	.018	.1623	12.2	250	24	6
8	.1285	.018	.1465	15.75	200	24	6
9	.1144	.015	.1294	20.00	200	24	6
10	.1019	.013	.1149	24.5	200	24	6
11	.0907	.013	.1037	30.75	200	24	6
12	.0808	.012	.0928	38.9	200	24	6
13	.072	.012	.084	48.57	200	24	6
14	.0641	.012	.0761	64.6	100	24	6

Diameter of Arbor Hole 1¼ inches.

ROUND MAGNET WIRE

COTTON AND SILK COVERED

		S.C.C.		D.C.C.		
Size B.&S.	Nom. Diam. Bare	Overall Diam.	Feet Per Lb.	Overall Diam.	Feet Per Lb.	Diam. Reel or Spool
4/0	.460	.468	1.56	.476	1.55	28
3/0	.410	.418	1.96	.426	1.95	28
2/0	.365	.373	2.48	.381	2.47	28
0	.325	.333	3.13	.341	3.11	28
1	.2893	.2973	3.91	.3053	3.88	24
2	.2576	.2656	4.94	.2736	4.9	24
3	.2294	.2374	6.23	.2454	6.17	24
4	.2043	.2123	7.84	.2203	7.81	24
5	.1819	.1899	9.88	.1959	9.84	24
6	.162	.170	12.44	.176	12.37	24
7	.1443	.1523	15.66	.1583	15.58	24
8	.1285	.1365	19.71	.1425	19.6	24
9	.1144	.1214	24.81	.1264	24.71	24
10	.1019	.1069	31.21	.1119	31.07	24
11	.0907	.0957	39.5	.1002	39.12	24
12	.0808	.0858	49.83	.0903	49.12	24
13	.072	.077	62.71	.081	62.00	24
14	.0641	.0691	78.79	.0731	77.86	24
15	.0571	.0621	99.27	.0661	97.80	12
16	.0508	.0558	125.09	.0598	122.91	12
17	.0453	.0503	157.59	.0543	154.04	12
18	.0403	.0453	198.31	.0493	193.64	12
19	.0359	.0409	249.19	.0449	233.16	8
20	.032	.037	313.	.041	303.	8
21	.0285	.0335	394.	.0375	379.	8
22	.0254	.0299	493.	.0344	471.	6
23	.0226	.0271	618.	.0316	584.	6
24	.0201	.0246	773.	.0291	726.	6
25	.0179	.02215	982.	.0264	932.	6
26	.0159	.02015	1228.	.0244	1149.	6
27	.0142	.01845	1533.	.0227	1419.	4½
28	.0126	.01685	1907.	.0211	1739.	4½
29	.0113	.01555	2365.	.0198	2130.	4½
30	.010	.01425	2945.	.0185	2606.	4½
31	.0089	.01315	3680.	.0174	3233.	4½
32	.008	.01225	4542.	.0165	3894.	4½
33	.0071	.01135	5569.	.0156	4666.	4½
34	.0063	.01055	6000.	.0148	5477.	4½
35	.0056	.00985	8331.	.0141	6602.	3½
36	.005	.009	9960.	.013	7556.	3½
37	.0045	.0085	10884.	.0125	8462.	3
38	.004	.008	13536.	.012	9860.	3
39	.0035	.0075	16174.	.0115	12052.	3
40	.0031	.0071	19900.	.0111	14334.	3
		Single Silk		Double Silk		
16	.0508	.0528	127.	.0543	126.	12
17	.0453	.0473	160.	.0488	159.	12
18	.0403	.0423	201.	.0438	199.	12
19	.0359	.0379	253.	.0394	250.	8
20	.032	.034	319.	.0355	314.	8
21	.0285	.0305	402.	.032	396.	8
22	.0254	.0274	506.	.0289	498.	6
23	.0226	.0246	637.	.0261	626.	6
24	.0201	.0221	802.	.0236	787.	6
25	.0179	.0199	1009.	.0214	990.	6
26	.0159	.0179	1268.	.0194	1242.	6
27	.0142	.0162	1595.	.0177	1560.	4½
28	.0126	.0146	2004.	.0161	1946.	4½
29	.0113	.0133	2516.	.0148	2431.	4½
30	.010	.012	3145.	.0135	3030.	4½
31	.0089	.0109	3930.	.0124	3736.	4½
32	.008	.010	4923.	.0115	4662.	4½
33	.0071	.0091	6156.	.0106	5800.	4½
34	.0063	.0083	7671.	.0098	7064.	4½
35	.0056	.0076	9547.	.0091	8666.	3½
36	.005	.007	11836.	.0085	10832.	3½
37	.0045	.0065	13396.	.008	12149.	3
38	.004	.006	16656.	.0075	14776.	3
39	.0035	.0055	20678.	.007	18369.	3
40	.0031	.0051	25628.	.0066	22052.	3

ROUND MAGNET WIRE

ENAMELED

Size B. & S.	Nom. Diam. Bare	Insulation Increase	Overall Diam.	Feet Per Lb.	Diam. Reel or Spool	Trav. Reel or Spool
10	.1019	.0021	.1039	31.12	24	6
11	.0907	.002	.0927	39.20	24	6
12	.0808	.0019	.0827	49.74	24	6
13	.072	.0019	.0739	63.32	24	6
14	.0641	.0019	.066	80.12	24	6
15	.0571	.0018	.0589	101.32	12	6
16	.0508	.0017	.0525	127.16	12	6
17	.0453	.0016	.0469	160.24	12	6
18	.0403	.0015	.0418	201.82	12	6
19	.0359	.0015	.0374	261.99	8	6
20	.032	.0014	.0334	320.41	8	6
21	.0285	.0014	.0299	403.86	8	6
22	.0254	.0012	.0266	510.59	6	2¾
23	.0226	.0012	.0238	642.80	6	2¾
24	.0201	.0012	.0213	810.70	6	2¾
25	.0179	.0011	.0190	1029.44	6	2¾
26	.0159	.0011	.0170	1282.71	6	2¾
27	.0142	.001	.0152	1621.53	4½	2¾
28	.0126	.001	.0136	2061.00	4½	2¾
29	.0113	.0009	.0122	2601.46	4½	2¾
30	.010	.0008	.0108	3299.57	4½	2¾
31	.0089	.0008	.0097	4119.80	4½	2¾
32	.008	.0008	.0088	5196.16	4½	2¾
33	.0071	.0007	.0078	6571.60	4½	2¾
34	.0063	.0007	.007	8201.43	4½	2¾
35	.0056	.0006	.0062	9831.87	3½	2¾
36	.005	.0006	.0056	12265.42	3½	2¾

ENAMELED AND COTTON COVERED

Size B. & S.	Nom. Diam. Bare	Overall Diam. E&SCC	Overall Diam. E&DCC	Feet Per Lb. E&SCC	Feet Per Lb. E&DCC
16	.0508	.0575	.0615	124.17	121.27
17	.0453	.0519	.0559	155.97	151.90
18	.0403	.0468	.0508	195.78	189.63
19	.0359	.0424	.0464	253.40	242.96
20	.032	.0384	.0424	308.41	295.90
21	.0285	.0349	.0389	386.04	367.75
22	.0254	.0311	.0356	487.04	463.54
23	.0226	.0283	.0328	608.02	575.18
24	.0201	.0258	.0303	761.44	711.39
25	.0179	.02325	.0275	946.61	874.89
26	.0159	.02125	.0255	1182.73	1090.86
27	.0142	.01945	.0237	1480.60	1346.60
28	.0126	.01785	.0221	1859.77	1658.40
29	.0113	.01645	.0207	2310.54	2006.02
30	.010	.01505	.0193	2850.87	2456.58
31	.0089	.01395	.0182	3535.69	2986.59
32	.008	.01305	.0173	4358.25	3550.51
33	.0071	.01205	.0163	5314.34	4212.83
34	.0063	.01125	.0155	6458.70	4872.58
35	.0056	.01045	.0147	7552.30	5668.61
36	.005	.0096	.0136	9171.79	6488.03

ENAMELED AND SILK COVERED

		E&SSC	E&DSC	E&SSC	E&DSC
16	.0508	.0545	.056	125.77	124.47
17	.0453	.0489	.0504	158.44	156.64
18	.0403	.0438	.0453	199.35	196.87
19	.0359	.0394	.0409	258.50	255.03
20	.032	.0354	.0369	315.80	311.22
21	.0285	.0319	.0334	397.52	391.25
22	.0254	.0286	.0301	501.78	493.12
23	.0226	.0258	.0273	630.48	617.67
24	.0201	.0233	.0248	792.46	774.77
25	.0179	.0210	.0225	993.31	968.43
26	.0159	.019	.0205	1245.33	1207.44
27	.0142	.0172	.0187	1430.41	1410.80
28	.0126	.0156	.0171	1978.04	1900.00
29	.0113	.0142	.0157	2483.23	2373.61
30	.010	.0128	.0143	3127.24	2969.39
31	.0089	.0117	.0132	3868.02	3639.33
32	.008	.0108	.0123	4820.43	4487.32
33	.0071	.0098	.0113	6026.63	5556.48
34	.0063	.009	.0105	7415.10	6755.39
35	.0056	.0082	.0097	8788.12	7929.59
36	.005	.0076	.0091	10756.15	9557.49

ANACONDA BARE AND WEATHERPROOF WIRES AND CABLES

Approximate Weights

WIRES

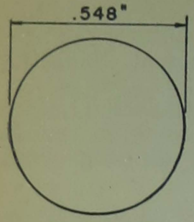
Size A.W.G.	Wire Diameter Inches	Cross-Sectional Area: Circular Mils	Cross-Sectional Area: Square Inch	Pounds per 1,000 Feet: Bare Wire	Pounds per 1,000 Feet: Double Braid	Pounds per 1,000 Feet: Triple Braid	Pounds per Mile: Bare Wire	Pounds per Mile: Double Braid	Pounds per Mile: Triple Braid
4/0	.4600	211600	.1662	640.5	723	767	3382	3817	4050
3/0	.4096	167800	.1318	507.9	587	629	2682	3099	3321
2/0	.3648	133100	.1045	402.8	467	502	2127	2466	2651
1/0	.3249	105500	.08289	319.5	377	407	1687	1991	2149
1	.2893	83690	.06573	253.3	294	316	1338	1552	1668
2	.2576	66370	.05213	200.9	139	260	1061	1262	1373
3	.2294	52630	.04134	159.3	185	199	841.2	977	1051
4	.2043	41740	.03278	126.4	151	164	667.1	797	866
5	.1819	33100	.02600	100.2	122	135	529.1	644	713
6	.1620	26250	.02062	79.46	100	112	419.6	528	591
8	.1285	16510	.01297	49.97	66	75	263.9	348	396
9	.1144	13090	.01028	39.63	54	62	209.3	285	327
10	.1019	10380	.008155	31.43	46	53	165.9	243	280
12	.08081	6530	.005129	19.77	30	35	104.4	158	185
14	.06408	4107	.003225	12.43	20	25	65.64	106	132
16	.05082	2583	.002028	7.818	16	20	41.28	84	106
18	.04030	1624	.001276	4.917	12	16	25.96	63	84
20	.03196	1022	.0008023	3.092	9	12	16.33	48	63

CABLES

Size C.M. or A.W.G.	No. of Wires	Cable Dia. Inches	Area Square Inches	Pounds per 1,000 Feet: Bare Wire	Pounds per 1,000 Feet: Double Braid	Pounds per 1,000 Feet: Triple Braid	Pounds per Mile: Bare Wire	Pounds per Mile: Double Braid	Pounds per Mile: Triple Braid
2,000,000	91	1.630	1.571	6,175	6690	7008	32,600	35320	37000
1,750,000	91	1.526	1.374	5,403	5894	6193	28,530	31120	32700
1,500,000	61	1.411	1.178	4,631	5098	5380	24,450	26920	28410
1,250,000	61	1.288	0.9817	3,859	4264	4508	20,380	22510	23800
1,000,000	61	1.152	0.7854	3,088	3456	3674	16,300	18250	19400
900,000	61	1.094	0.7069	2,779	3127	3332	14,670	16510	17590
800,000	61	1.031	0.6283	2,470	2799	2992	13,040	14780	15800
750,000	61	.998	0.5890	2,316	2635	2822	12,230	13910	14900
700,000	61	.964	0.5498	2,161	2471	2650	11,410	13050	13990
600,000	37	.891	0.4712	1,853	2093	2235	9,781	11050	11800
500,000	37	.813	0.3927	1,544	1765	1894	8,151	9319	10000
450,000	37	.772	0.3534	1,389	1601	1724	7,336	8453	9103
400,000	19	.726	0.3142	1,235	1436	1553	6,521	7582	8200
350,000	19	.679	0.2749	1,081	1248	1345	5,706	6589	7102
300,000	19	.629	0.2356	926.3	1083	1174	4,891	5718	6199
250,000	19	.574	0.1964	771.9	907	985	4,076	4789	5201
4/0	7	.522	0.1662	653.3	745	800	3,450	3934	4224
3/0	7	.464	0.1318	518.1	604	653	2,736	3189	3448
2/0	7	.414	0.1045	410.9	482	522	2,170	2545	2756
1/0	7	.368	0.08286	325.7	388	424	1,720	2049	2239
1	7	.328	0.06573	258.4	303	328	1,364	1600	1732
2	7	.292	0.05213	204.9	246	270	1,082	1299	1426
3	7	.260	0.04134	162.5	190	206	858.0	1003	1088
4	7	.232	0.03278	128.9	155	170	680.5	818	898
5	7	.206	0.02600	102.2	126	140	539.6	665	739
6	7	.184	0.02062	81.05	103	115	427.9	544	607
8	7	.146	0.01297	50.98	68	78	269.1	359	412

ANACONDA TROLLEY WIRE

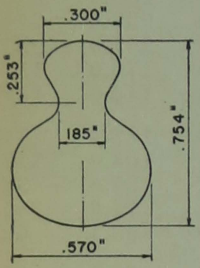
HARD DRAWN COPPER



300,000 CM
Round

ROUND SECTION

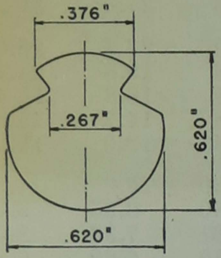
Nominal Size Awg	Nominal Area Cir. Mils	Actual Area Sq. In.	Weight Lbs. Per 1000 Ft.	Weight Lbs. Per Mile	D.C. Resistance, Ohms Per 1000 Ft. at 20° C.	D.C. Resistance, Ohms Per Mile at 20° C.	Min. Tensile Strength Lb. per Sq. In.	Min. Breaking Strength, Lb.
1/0	105,600	.0830	319.7	1688	.1011	.5336	54,500	4,521
2/0	133,200	.1046	403.2	2129	.08012	.4230	52,800	5,524
3/0	168,100	.1320	508.8	2687	.06350	.3353	51,000	6,734
4/0	211,600	.1662	640.5	3382	.05045	.2664	49,000	8,143
......	300,000	.2359	909.0	4800	.03555	.1877	46,400	10,940



350,000 CM
Figure 8

FIGURE EIGHT SECTION

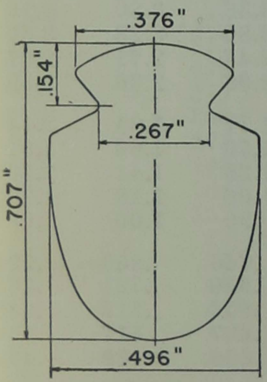
1/0	105,600	.0830	319.5	1687	.1011	.5340	51,800	4,294
2/0	133,200	.1045	402.8	2127	.08023	.4236	50,200	5,246
3/0	168,100	.1318	508.0	2682	.06361	.3359	48,500	6,392
4/0	211,600	.1662	640.5	3382	.05044	.2663	46,600	7,745
......	350,000	.2750	1060.	5597	.03049	.1610	42,800	11,770



350,000 CM
Grooved

GROOVED SECTION

2/0	133,200	.1083	417.6	2205	.07741	.4087	50,200	5,437
3/0	168,100	.1314	506.4	2674	.06380	.3369	48,500	6,373
4/0	211,600	.1665	641.9	3389	.05035	.2659	46,600	7,759
......	300,000	.2355	907.6	4792	.03560	.1880	44,200	10,410
......	350,000	.2758	1063.	5612	.03040	.1605	42,800	11,800



350,000 CM
Figure 9

FIGURE NINE DEEP SECTION

......	350,000	.2740	1056.	5576	.03060	.1616	42,800	11,730
......	400,000	.3120	1202.	6347	.02687	.1419	41,300	12,890

Minimum conductivity, 97.16 per cent I.A.C.S.

DIMENSIONS, INCHES

	ROUND	FIGURE EIGHT				GROOVED				FIGURE NINE			
Size Awg	Diam. In.	Sec. Dpth.	Lobe, Width Upper	Lobe, Width Lower	Web Thick.	Sec. Dpth.	Lobe, Wdth Upper	Lobe, Wdth Lower	Web Thick.	Sec. Dpth.	Lobe, Width Upper	Lobe, Width Lower	Web Thick.
1/0	.325	.420	.175	.312	.106	------	------	------	------	------	------	------	------
2/0	.365	.480	.196	.352	.107	.392	.318	.388	.217	------	------	------	------
3/0	.410	.540	.222	.400	.130	.430	.340	.429	.237	------	------	------	------
4/0	.460	.600	.250	.450	.150	.482	.376	.482	.267	------	------	------	------
300 Mcm	.548	.754	.300	.570	.185	.574	.376	.574	.267	------	------	------	------
350 Mcm	------	------	------	------	------	.620	.376	.620	.267	.707	.376	.496	.267
400 Mcm	------	------	------	------	------	------	------	------	------	.745	.376	.552	.267

NICHROME RESISTANCE WIRE

"NICHROME"* has a specific resistance equivalent to that of Mercury, viz.: — about 100 micromes per cubic centimeter.

This alloy is practically non-corrosive, has an extremely high melting point and is far superior to nickel in its ability to withstand high temperatures.

Temperature co-efficient (or change of resistance with change of temperature) is small, being + .00024 per 1° F. (.00044 per 1° C.).

"Nichrome" has a wid erange of application in heating devices operating up to 900° C. (1652° F.), which includes all the cord-attached domestic appliances.

It is also used in general applications such ar radio rheostats and potentiometers, high resistance rheostats, industrial rheostats, dipping baskets, woven wire mesh, etc.

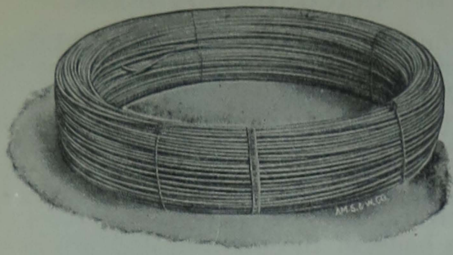
				Carrying Capacity in Amperes of Nichrome Straight Wires Stretched Horizontally in Free Air								
No. B. & S.	Ohms Per Ft. at 20° C. (68° F.)	Feet Per Pound Bare Wire	List Price Per Lb. Bare Wire	100 212	200 392	300 572	400 752	500 932	600 1112	700 1292	800 1472	900° C. 1652° F.
1	.0081	4.33	**$2.70**	54.2	100.0	136.0	169.0	201.0	225.0	254.0	280.0	308.0
2	.0101	5.43	**2.70**	45.9	84.5	115.0	143.0	170.0	191.0	215.0	237.0	261.0
3	.0128	6.90	**2.70**	38.9	71.5	97.5	121.5	144.0	162.0	182.0	201.0	221.0
4	.0162	8.70	**2.70**	33.0	60.6	82.6	103.0	122.0	137.0	154.0	170.0	187.0
5	.0203	10.9	**2.70**	28.0	51.4	70.0	87.0	103.0	116.0	130.0	144.0	158.0
6	.0257	13.7	**2.70**	23.8	43.5	59.4	73.7	87.4	98.7	110.0	122.0	134.0
7	.0325	17.5	**2.70**	20.2	36.8	50.3	62.5	74.0	83.7	93.5	104.0	113.0
8	.0408	22.2	**2.70**	17.1	31.2	42.6	53.0	62.6	71.0	79.2	87.6	96.2
9	.0519	27.8	**2.74**	14.5	26.4	36.1	44.8	53.0	60.0	67.1	74.3	81.5
10	.0649	34.5	**2.78**	12.3	22.4	30.6	38.0	44.8	51.2	57.0	63.1	68.8
11	.0815	43.5	**2.82**	10.4	19.0	25.9	32.2	38.0	43.4	48.3	53.5	58.3
12	.102	55.6	**2.88**	8.80	16.1	22.0	27.3	32.1	36.8	40.8	45.3	49.4
13	.130	69.9	**2.94**	7.45	13.6	18.6	23.1	27.2	31.0	34.6	38.4	41.9
14	.164	88.5	**3.00**	6.31	11.5	15.8	19.6	23.0	26.2	29.3	32.4	35.5
15	.207	109	**3.06**	5.35	9.77	13.4	16.6	19.5	22.3	24.8	27.6	30.2
16	.259	139	**3.12**	4.54	8.28	11.35	14.1	16.5	18.9	21.0	23.4	25.6
17	.333	179	**3.20**	3.85	7.02	9.60	12.0	14.0	16.0	17.8	19.8	21.7
18	.421	226	**3.30**	3.26	5.95	8.13	10.1	11.8	13.6	15.1	16.8	18.4
19	.520	279	**3.45**	2.76	5.04	6.88	8.60	10.1	11.55	12.8	14.2	15.6
20	.659	353	**3.60**	2.32	4.27	5.83	7.30	8.53	9.70	10.85	12.0	13.2
21	.831	446	**3.80**	1.97	3.62	4.94	6.17	7.23	8.21	9.20	10.2	11.2
22	1.055	565	**4.10**	1.67	3.07	4.18	5.23	6.13	6.96	7.80	8.65	9.46
23	1.321	709	**4.40**	1.42	2.60	3.54	4.43	5.19	5.90	6.61	7.33	8.02
24	1.670	893	**4.80**	1.20	2.20	3.00	3.75	4.40	5.00	5.60	6.20	6.80
25	2.106	1,123	**5.20**	1.02	1.86	2.54	3.18	3.73	4.25	4.67	5.27	5.76
26	2.669	1,429	**5.60**	.865	1.58	2.15	2.70	3.16	3.61	3.96	4.47	4.88
27	3.347	1,786	**6.00**	.734	1.34	1.82	2.28	2.68	3.06	3.36	3.80	4.13
28	4.251	2,273	**6.40**	.622	1.13	1.54	1.85	2.27	2.62	2.86	3.23	3.50
29	5.286	2,857	**6.80**	.527	.960	1.305	1.57	1.93	2.22	2.45	2.71	2.97
30	6.750	3,623	**7.20**	.447	.814	1.105	1.33	1.64	1.89	2.08	2.30	2.52
31	8.521	4,566	**7.60**	.378	.680	.935	1.13	1.39	1.60	1.77	1.95	2.14
32	10.546	5,650	**8.00**	.321	.577	.791	.955	1.18	1.36	1.50	1.66	1.81
33	13.390	7,194	**8.60**	.272	.490	.670	.809	1.00	1.15	1.28	1.41	1.53
34	17.006	9,091	**9.40**	.231	.416	.567	.685	.849	.980	1.06	1.18	1.29
35	21.524	11,490	**10.50**	.196	.353	.480	.580	.720	.830	.90	1.00	1.09
36	27.000	14,490	**12.00**	.166	.300	.40	.491	.611	.704	.765	.850	.924
37	33.333	17,860	**14.00**	.141	.254	.344	.416	.518	.597	.650	.721	.783
38	42.187	22,220	**17.00**	.120	.216	.291	.352	.440	.507	.552	.613	.663
39	55.102	29,410	**21.00**	.101	.183	.246	.298	.373	.430	.467	.517	.566
40	70.239	40,000	**26.00**	.085	.155	.208	.252	.316	.364	.396	.439	.480
						Diameter .00275 Inch						
....	89.256	47,600	**32.00**	.070	.126	.171	......	......	......	......	......	......
						Diameter .0025 Inch						
....	108.000	58,900	**40.00**	.060	.105	.145	......	......	......	......	......	......
						Diameter .00225 Inch						
....	133.333	71,500	**50.00**	.050	.091	.122	......	......	......	......	......	......
						Diameter .002 Inch						
....	168.750	91,000	**60.00**	.042	.077	.103	......	......	......	......	......	......
						Diameter .00175 Inch						
....	220.408	125,000	**75.00**	.035	.062	.085	......	......	......	......	......	......
						Diameter .0015 Inch						
....	300.000	166,666	**95.00**	.030	.052	.071	......	......	......	......	......	......

Unless otherwise specified material listed above will be supplied soft temper.

Prices of Cotton and Silk Covered Wires furnished on request.

*Trade Mark Reg. U. S. Pat. Off. of Alloys made only by Driver-Harris Company.

AMERTEL TELEPHONE AND TELEGRAPH WIRE



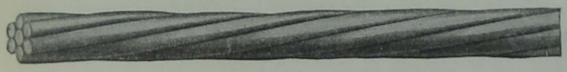
Amertel Extra Best Best (E.B.B.) stands highest in conductivity. Weight per mile ohm, 4700 to 5000 pounds. Used by telegraph companies.

Amertel Best Best (B.B.) is superior to the E.B.B. in tensile strength and equal in galvanizing, but of lower electrical value. Weight per mile ohm, 5600 to 6000 pounds. Used largely by telephone companies.

Amertel Steel, designed for short-line telephone service, where a measure of conductivity can be exchanged for high tensile strength. Weight per mile ohm, 6500 to 7000 pounds.

		Appr. Wt Lbs.		Approx. Breaking Strain in Lbs.		
Size B.W.G.	Diam. In.	Per 1000 Ft.	Per Mile	Ex. B.B.	B.B.	Steel
4	.238	153	811	2028	2270	2433
6	.203	112	590	1475	1650	1770
8	.165	74	390	975	1090	1170
9	.148	60	314	785	880	942
10	.134	49	258	645	720	774
11	.120	39	206	515	575	618
12	.109	32	170	425	475	510
14	.083	19	99	247	275	297

STEEL STRAND



Standard Steel Strand

Galvanized or extra galvanized. Seven steel wires twisted into a single strand.

Diam. In.	Approx. Wt. Lbs. Per 1000 Ft.	Approx. Strength in Lbs.	List Price Per 100 Ft.
¾	1200	16700	**$14.00**
⅝	813	11600	**8.50**
9/16	671	9600	**7.00**
½	517	7400	**5.50**
7/16	399	5700	**4.50**
⅜	273	4250	**3.50**
5/16	205	3200	**2.50**
9/32	164	2570	**2.25**
¼	121	1900	**1.75**
7/32	98.3	1540	**1.50**
3/16	72.9	1150	**1.25**
5/32	51.3	870	**1.15**
9/64	40	700	**1.10**
⅛	31.8	540	**1.00**
7/64	25	450	**.90**
3/32	20	400	**.80**
5/64	13	300	**.70**

	Siemens-Martin Ex. Galvanized		**High Strength Ex. Galvanized**		**Extra High Strength Ex. Galvanized**	
Diam. In.	Tensile Strength Lbs.	Price Per 100 Ft.	Tensile Strength Lbs.	Price Per 100 Ft.	Tensile Strength Lbs.	Price Per 100 Ft.
⅝	19100	**$8.25**	29600	**$12.00**	42400	**$14.60**
9/16	15700	**6.00**	24500	**9.50**	35000	**11.70**
½	12100	**5.25**	18800	**7.25**	26900	**8.80**
7/16	9350	**4.30**	14500	**6.00**	20800	**7.20**
⅜	6950	**3.25**	10800	**4.40**	15400	**5.25**
5/16	5350	**2.50**	8000	**3.20**	11200	**4.25**
9/32	4250	**2.05**	6400	**2.80**	8950	**3.50**
¼	3150	**1.70**	4750	**2.25**	6650	**2.85**
3/16	1900	**1.35**	2850	**1.80**	3990	**2.40**
⅛	910	**.90**	1330	**1.20**	1830	**1.60**

AMERTEL TELEPHONE AND TELEGRAPH WIRE

AMERTEL-85 GRADE TELEPHONE AND TELEGRAPH WIRE

For years, communication engineers have made insistent demands for a galvanized telephone and telegraph wire combining greater tensile strength and lower resistance.

Amertel-85 is the outstanding answer to these demands—the culmination of intensive research. It is the telephone and telegraph wire which offers:

1—A minimum tensile strength approximately 90 percent greater than that of "E.B.B." grade—65 percent greater than that of "E.B." grade—55 percent greater than that of "Steel" grade.

2—An effective resistance of voice-frequencies, with currents of normal magnitude for these frequencies, substantially equal to that of the best grade of iron wire.

3—Superior galvanizing which assures controlled bonding of zinc with the metal base.

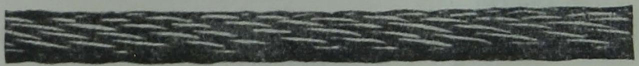
Amertel-85 represents an outstanding contribution to increased economy and efficiency in building and maintaining overhead communication lines.

Size B.W.G.	Diam. In.	Approx. Wt. Lbs. Mile	Coil Lgth. Mile	Min. Breaking Load (Lbs.)	Max. Resistance Ohms Per Mile
9	.148	314	½	1462	18.47
10	.134	258	½	1199	22.48
12	.109	170	½	793	32.12
14	.083	99	½	460	58.59

Furnished in continuous lengths without splices or joints.

Note: Use the designation Amertel-85 Grade in specifying this material. Galvanized steel compression-type sleeves are recommended for splicing Amertel-85 Telephone and Telegraph Wire.

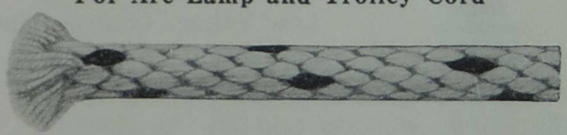
GALVANIZED ARC LAMP CORD



Diam. In.	Wt.Lb. Per Ft.	Breaking Stress in Lbs.	Construction	Price Per 100 Ft.
⅜	163	2000	9x7	**$5.00**
5/16	107	1530	9x4	**3.50**
¼	77	1125	9x4	**2.75**

SAMSON SPOT WATERPROOFED CORD

For Arc Lamp and Trolley Cord

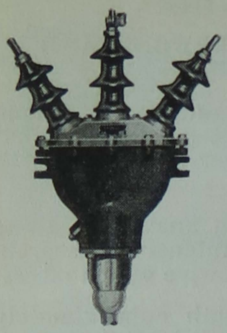


For arc lamp cord, it acts as an insulator, and does not break without warning.

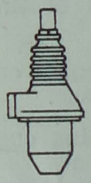
For Trolley Cord, especially for use with trolley catchers and retrievers, Spot Cord is extremely durable because of its smoothness of braid and uniformity of size.

			Price, Per Lb.	
Size No.	Diam. In.	Approx. Wt.Lbs. Per Coils of 1200 Ft.	Broken Coils	Full Coils (Approx. 1200 Ft.)
8	¼	32	**$1.50**	**$1.25**
10	5/16	50	**1.50**	**1.25**
12	⅜	70	**1.50**	**1.25**
14	7/16	90	**1.50**	**1.25**
16	½	115	**1.50**	**1.25**

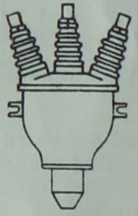
ANACONDA CABLE ACCESSORIES



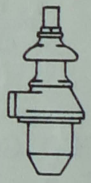
Anaconda Pothead



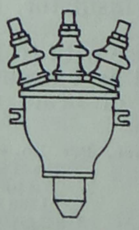
Single Conductor Indoor Pothead



Three Conductor Indoor Pothead



Single Conductor Outdoor Pothead



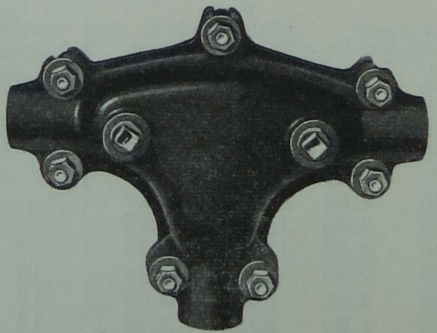
Three Conductor Outdoor Pothead

DISTINCTIVE FEATURES OF ANACONDA POTHEADS

1. (a) All insulators of standard Anaconda potheads are REMOVABLE and REPLACEABLE — a decided advantage in case of damage; only the porcelain need be replaced and not the entire pothead.
   (b) Insulators are made of wet process porcelain, and, when threaded into the cap, they form an AIR, VACUUM and OIL TIGHT seal.
   (c) The new Anaconda potheads are designed to provide higher minimum flashovers from line to ground and still higher flashovers from line to line by providing greater terminal clearances.
   (d) Insulator skirts project into the body of the pothead and are completely immersed in compound providing greater internal insulation.
2. Insulated cable terminated inside the pothead with insulation of individual conductors extending into the porcelain bushings and completely sealed at porcelain top by means of solid hoodnut with overhang to protect gaskets.
3. DARDELET SELF-LOCKING THREADS used on stem parts prevent loosening of hoodnuts and provide MUCH HIGHER CONDUCTIVITY THAN STANDARD V THREADS.
4. Cast Everdur caps which are NON-MAGNETIC and CORROSION RESISTING are used.
5. Cast iron bells of five different shapes are ENTIRELY INTERCHANGEABLE to meet any desired arrangement of cable installation.
6. Cable entrances of seven different INTERCHANGEABLE styles to suit all types of cable.
7. Aerial lugs of ELEVEN DIFFERENT INTERCHANGEABLE styles for connecting to aerial cable, bus bars, or special constructions.
8. Anaconda compound gaskets — OIL RESISTANT even at high temperatures. Gasketed joints secured by an adequate number of Everdur cap screws assure continued tightness and service after installation.
9. All gasket edges are protected to prevent unnecessary exposure.
10. All cap screws and plugs require one size of wrench in assembly.
11. NAMEPLATE on Pothead not only identifies pothead, manufacturer, catalog number, and rating, but also includes CUSTOMER'S and MANUFACTURER'S ORDER NUMBER.
12. Potheads are provided with large filling vent and drain plugs.
13. Mounting feet on pothead bells equipped with single slots for smaller sizes and double slots in the feet on larger bells provide rugged support.

The Anaconda Accessories Line Includes

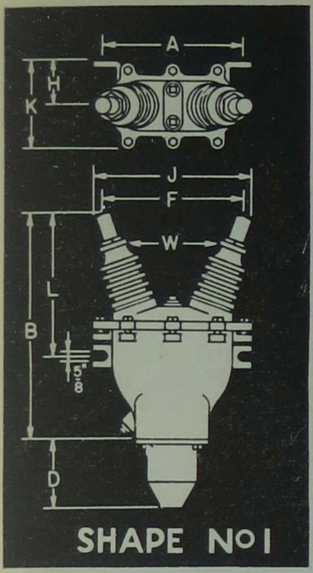
Single Conductor Potheads Outdoor and Indoor.
Single Conductor Potheads for Terminating Multi-conductor Cables.
Multi-conductor Capnut Type Potheads —Indoor and Outdoor.
Disconnecting Potheads.
Through Type Potheads.
Transformer Potheads.
Low Voltage Control Cable Potheads.
Suspension Unit for Bore Hole Cables.
Porcelain Insulators.
Cable Entrances.
Pothead Bells.
Pothead Caps.
Aerial Lugs.
Joint Boxes.
Jointing Material.
Duct Recording Thermometer.
Insulating Compounds.
Miscellaneous Accessories.
Miscellaneous Material.



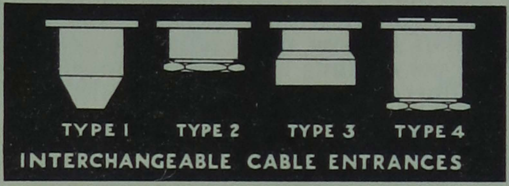
3-Way Splice Box

ANACONDA CABLE ACCESSORIES

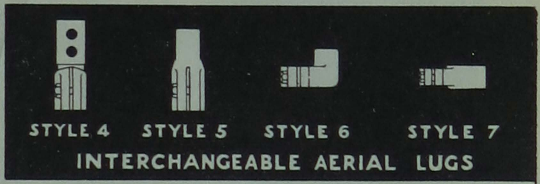
TWO-CONDUCTOR INDOOR POTHEADS, CAPNUT TYPE, WITH DIVERGING INSULATORS AND INTERCHANGEABLE FLAT BELLS



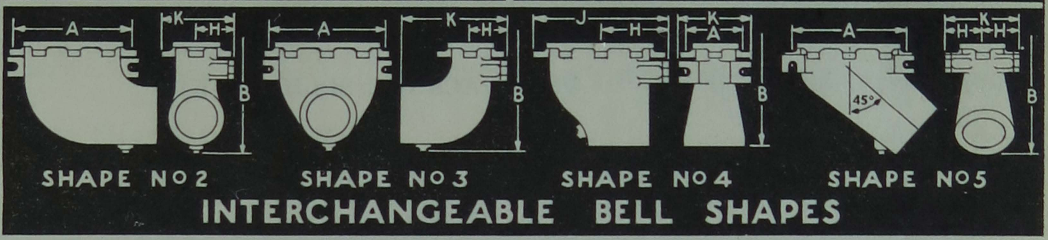
SHAPE No I



INTERCHANGEABLE CABLE ENTRANCES



INTERCHANGEABLE AERIAL LUGS



INTERCHANGEABLE BELL SHAPES

INSTRUCTIONS FOR ORDERING ANACONDA POTHEADS

To assure receipt of the proper material, complete description is essential. The following tabulation shows important specification points to be included, minimum information necessary for filling pothead orders is shown in capital letters.

1. NO. OF UNITS REQUIRED.

2. General Classification—POTHEADS JUNCTION BOXES, UNIT PACKAGES, etc.

3. Identify potheads completely in the following respects:
   (a) Type, shape and size of pothead
   (b) Number of conductors
   (c) Service voltage
   (d) Conductor size—potheads may be used on smaller conductor cables than the maximum conductor size for which the pothead is classified. In such cases conductor sizes should be specified to assure fitting to connector parts.

4. CABLE ENTRANCE STYLE DESIRED — Wiping nipple types are assumed unless otherwise specified. If pothead is to be pipe-connected or is stuffing-box type, order should so mention and the size of conduit must be specified.

5. AERIAL LUG STYLE DESIRED—Anaconda Style 6, vertical offset style is furnished unless otherwise specified.

6. CABLE INFORMATION — Potheads can be shipped from the factory with connectors and entrances drilled to fit the cable only if complete cable information is provided. This includes:
   (a) No. of conductors in cable
   (b) Conductor size
   (c) Voltage rating
   (d) Kind of insulation
   (e) Thickness of insulation
   (f) Covering material (lead, braid, armor, etc.)
   (g) Thickness of each covering layer
   (h) Size of conduit, if used
   (i) CABLE OVERALL DIAMETER

7. INSULATING COMPOUND REQUIRED — Potheads ordered by catalog number do not include insulating compound unless specified. If Anaconda No. 150 Superseal or other superseal compound is desired with potheads specify: "Complete with No. .... superseal insulating compound."

Example — Complete pothead specification: 6 Anaconda potheads, complete with No. 150 superseal insulating compound, with Style 6 vertical offset aerial lug and type 3 pipe connection for 3-inch conduit, for 3/c 250 Mcm, 7500 volt, 7x4/64 paper insulated, ⅛-inch lead covered cable, O. D. 2.205 inches.

ANACONDA CABLE ACCESSORIES

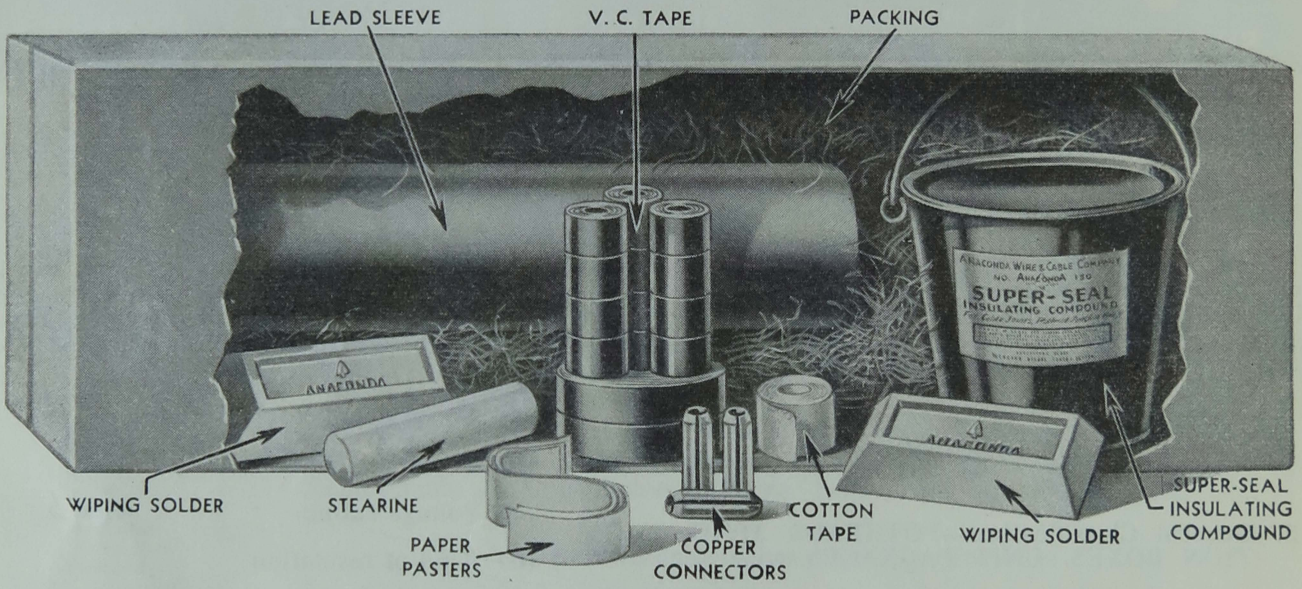
ANACONDA
Super-Seal
LOW VOLTAGE
INSULATING COMPOUND

SUPER-SEAL INSULATING COMPOUND

No. 150

A plastic compound for general use in cable joints and potheads, recommended particularly for those subjected to wide variations in operating temperatures, because of its low temperature susceptibility. Remains plastic at low temperatures, yet exhibits a minimum tendency to flow at high operating temperatures. It adheres to porcelain and metals, preventing internal creepage.

UNIT PACKAGE SPLICING KIT


LEAD SLEEVE
V. C. TAPE
PACKING
ANACONDA WIRE & CABLE COMPANY
NO. ANACONDA 150
SUPER-SEAL
INSULATING COMPOUND
ANACONDA
ANACONDA
WIPING SOLDER
STEARINE
PAPER PASTERS
COPPER CONNECTORS
COTTON TAPE
WIPING SOLDER
SUPER-SEAL INSULATING COMPOUND

The complete line of Anaconda Unit Package Jointing Material for compound filled "solid type" cable joints is supplied for single, two, three, and four-conductor cables having paper, varnished cambric, or rubber insulation for voltages up to 33kv.

Each unit package contains all necessary material including: copper connector, lead sleeve, wiping solder, varnished cambric, paper or rubber tapes, stearine flux, paper pasters, cotton tapes, cotton yarn, shielding tapes, and compound required for the specified joint.

Unit packages of jointing material have many advantages:

1. Each package is labeled, showing size, rating, and contents.
2. Correct material for each specified joint.
3. No waste or unused material.
4. Ease of handling inventory in stockroom.
5. Economical and convenient method for handling in storeroom.
6. Spare units available for emergencies in stockroom.
7. Uniformity and quality of materials purchased from one source.

We recommend and will supply our Standard Number 150 Super-Seal Insulating Compound in all unit packages for joints rated up to 25 kv unless otherwise specified.

Information needed when submitting inquiries or orders:

1. Number of unit packages required.
2. Operating voltage.
3. Size and number of conductors.
4. Shape of conductor (round or sector).
5. Thickness and kind of insulation.
6. Thickness of lead sheath of cable.

Note: Instructions covering procedure in making joints ordered are included in each shipment.

SHERMAN SPLIT TINNED COPPER CABLE SLEEVES

(Connectors)

Made only from the highest quality of pure copper in accordance with accepted standards of the Electrical Utility trade.

Joints made with Sherman Sleeves run cooler than the cable itself.

Pure lead-tin alloy coating insures an easily sweated joint of low resistance. No sharp edges to cause voltage stress concentration or to puncture insulating tape.

Part No.	Max. B&S (AWG) Solid Wire	Max. B&S (AWG) Stranded Wire	Approx. I.D.	Length Inches	Weight Per 1000
104	14	....	.069	1½	4½
103	12	....	.086	1½	5
102	10	....	.107	1½	5
101	9	10	.116	1½	5
100	8	9	.133	1½	6
1	7	8	.151	1½	6½
2	6	7	.169	1½	7½
3	5	6	.189	1½	12
4	4	5	.211	1½	15
5	3	4	.237	2	20
6	2	3	.265	2	25
7	1	2	.297	2	35
8	0	1	.337	2	40
9	00	0	.378	2	50
10	000	00	.423	2	65
11	0000	000	.475	2	85
12	....	0000	.533	2½	125
13	....	250,000 C.M.	.581	2½	150
14	....	300,000	.635	2½	180
15	....	350,000	.690	2½	210
15S	....	375,000	.715	2¾	250
16	....	400,000	.740	3	280
17	....	450,000	.784	3	320
18	....	500,000	.826	3	340
19	....	550,000	.868	3	410
20	....	600,000	.906	3½	500
21	....	650,000	.948	3½	520
22	....	700,000	.983	3½	540
23	....	750,000	1.018	3½	580
24	....	800,000	1.052	4	620
25	....	850,000	1.083	4	690
26	....	900,000	1.115	4	750
27	....	950,000	1.145	4	840
28	....	1,000,000	1.175	4½	1030
29	....	1,250,000	1.320	4½	1200
30	....	1,500,000	1.440	5	1650
31	....	1,750,000	1.560	5½	2100
32	....	2,000,000	1.664	6	2725
33	....	2,500,000	1.855	6½	3300

Special sleeves can be furnished, data and prices on application.

SHERMAN TWISTED TUBE SPLICING SLEEVES

FOR COPPERWELD WIRE

(Made in Oval Tube Type Only)

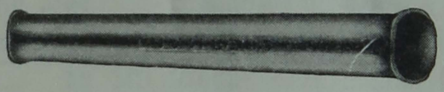
Made from special seamless copper tubing.

These sleeves have passed all tests and will develop the maximum percentage of the ultimate strength of the cable for which they are designed. Tempered specifically for use with copperweld and copperweld-copper composite wires and cables.

For Type A 3-Wire Copperweld-Copper Cable

Part No.	Conductor No.†	Cable Dia. Inches	Equivalent AWG Copper Wire Size	Sleeve Length Inches	Weight Per 1000
C010	8A	.200	8	7½	133
C011	7A	.224	7	7½	154
C012	6A	.230	6	9	220
C013	5A	.259	5	9¾	305
C014	4A	.290	4	11	392
C015	3A	.325	3	12½	560
C016	2A	.367	2	14	685

FOR REGULAR COPPERWELD WIRE AND CABLE



Part No.	Wire Size B&S (AWG)	Length Inches	Weight per 1000
	High Strength Solid		
S05	No. 10	4	30
S06	No. 9	4½	50
S07	No. 8	5	55
S08	No. 7	5¼	73
S09	No. 6	6	75
S010	No. 5	6¾	133
S011	No. 4	7½	154
S012	No. 3	8½	209
S013	No. 2	9¾	305
S014	No. 1	11	392
	For Extra High Strength Solid		
X010	No. 5	8¾	240
X011	No. 4	9½	285
X012	No. 3	11	370
X013	No. 2	12	495
	For High Strength Stranded		
W010	3 No. 12, 8C or 9½D	6¾	133
W012	3 No. 10	8½	202
W013	3 No. 9	9¾	289
W014	3 No. 8	10½	336
W015	3 No. 7	12	440
W016	3 No. 6	13½	635
W015	5/16 (7 No. 10)	12	440
W016	11/32 (7 No. 9)	13½	635
W017	⅜ (7 No. 8)	14¾	765
W018	7/16 (7 No. 7)	16¾	1100

SHERMAN TWISTED TUBE SPLICING SLEEVES

For Soft, Medium or Hard Drawn Copper Wire Stranded or Solid

Both Oval and Figure Eight Types Made from Seamless Copper Tubing

These Sleeves have passed all tests and will develop the maximum percentage of the ultimate strength of the wire or cable for which they are designed. Correctly tempered.

Oval Part No.	Fig. 8 Part No.	Max. B&S (AWG) Solid Wire	Max. B&S (AWG) Stranded Wire (7 or 19)	Length Inches Oval	Length Inches Fig. 8	Weight Per 1000
......	81	17	....	....	4	15
......	82	16	....	....	4	18
03	83	14	....	4	4	20
04	84	12	....	4½	4½	23
05	85	10	....	4	4¾	30
06	86	9	....	4¾	5¼	50
07	87	8	....	5	5½	60
......	88	7	....	....	5¾	85
09	89	6	....	6	6	100
......	810	5	....	....	6	115
......	811A	4	....	....	8	160
011	811	4	....	8	6	130
012	812	3	4	8½	8¾	190
013	813	2	3	10	9½	250
014	814	1	2	11	12	335
015	815	0	1	12½	14	550
016	816	00	0	14	16	675
017	817	000	00	16	18	1025
018	818	0000	000	18	20	1400
019	819	....	0000	19½	20	1510
020	......	....	250 M. CM	21	....	1800
021	......	....	300 M. CM	21¾	....	2200
023	......	....	500 M. CM	24	....	3200

Note: For 3-strand wire use next size larger than for 7-strand.

Fig. 8 sleeves can be furnished in half lengths or combination sizes.

Any of the above sleeves can be furnished tinned for use with galvanized iron wire.

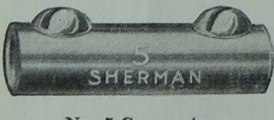
In case of question on proper size sleeve—furnish size, stranding, maximum diameter and material.

Prices on application.

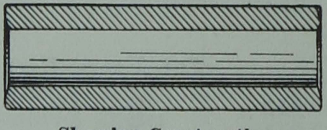
SHERMAN SET SCREW CONNECTORS

FOR SOLID AND STRANDED CABLE

Wire Holes Extending Clear Through



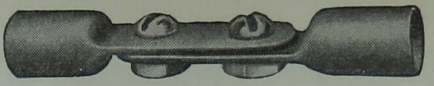
No. 5 Connector



Showing Construction

Cat. No.	Max. Solid	Wire Str.	Screws	Diam. Hole In.	Outside Diam. In.	Lgth. In.	Std. Pkg.	Wt. Lbs. Std. Pkg.
0	12	....	2	.106	5/16	1½	100	3¾
1	8	9	2	.147	5/16	1½	100	3½
2	6	7	2	.185	⅜	1¾	100	5
3	4	5	2	.228	7/16	1⅞	100	7
4	2	3	2	9/32	½	1⅞	100	8½
5	0	1	2	11/32	9/16	1⅞	50	5
6	00	0	2	⅜	⅝	1⅞	50	6
7	4	5	4	.228	7/16	1⅞	100	7½
8	2	3	4	9/32	½	1⅞	100	9
9	0	1	4	11/32	9/16	1⅞	50	5½
10	00	0	4	⅜	⅝	1⅞	50	6¾
11	000	00	4	7/16	11/16	2	50	7½
12	0000	000	4	½	¾	2	50	8½
13	....	0000	4	9/16	⅞	2 3/16	25	6¾

SHERMAN DRAWN COPPER CONNECTORS

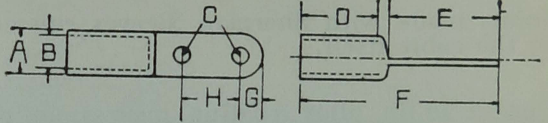


The connector consists of two seamless terminals, so constructed that when bolted together both halves are in perfect alignment, and no part projects beyond the circumference of the tubular portion, so that a piece of flexible conduit or fibre sleeve may be slipped over the entire connection for insulation.

While two pieces are required to make one complete connector, they are described and listed by single pieces. Connectors are not shipped assembled, as they cannot be applied in that way.

On account of its small size, only the ¼-inch connector is made wider than tubular part.

Size (A) In.	Maximum Str. Wire B&S Gauge	Approx. Dimensions, Inches B	C	D	E	F	G	H	Approx. Wt. Lbs. per 1000
¼	8	.186	11/64	⅜	19/32	1 1/32	9/32	⅜	9



These sizes have two stud holes. Two bolts and nuts are required for each complete connector, consisting of two pieces.

Size (A) In.	Maximum Str. Wire B&S Gauge	Approx. Dimensions, Inches B	C	D	E	F	G	H	Approx. Wt. Lbs. per 1000
⅜	4	.285	11/64	9/16	29/32	1⅝	7/32	⅜	25
½	0	.398	11/64	¾	1¼	2 3/16	9/32	⅝	52
⅝	000	.511	17/64	13/16	1 11/16	2 11/16	⅜	⅞	85
	CM								
13/16	250000	.651	17/64	1¼	2 1/16	3⅝	7/16	1⅛	228
15/16	400000	.776	11/32	1½	2 5/16	4	½	1¼	250
1	450000	.82	11/32	1½	2 7/16	4 3/16	½	1¼	310
1 1/16	500000	.88	13/32	1¾	2 9/16	4½	⅝	1¼	325
1 5/16	800000	1.084	17/32	2	2 11/16	5	⅝	1⅜	350
1¾	1500000	1.46	17/32	2⅜	3⅜	6⅜	¾	1¾	625
2 1/16	2000000	1.66	21/32	2⅝	3⅜	6¾	¾	1¾	1350

Bolts and nuts will not be furnished unless specified. Regularly furnished with heavy rust proofing.

Nuts and Bolts

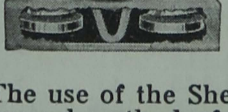
Size Connector Inches	Size Bolts Inches	No. in Std. Pkg.	Appr. Wt. Lbs. per 1000
¼, ⅜, ½	5/32 x ¼	1000	7
⅝, 13/16	¼ x ⅜	500	17
15/16	5/16 x ⅝	200	32
1	5/16 x ¾	200	33
1 1/16	⅜ x ¾	200	57
1 5/16	½ x 15/16	100	113
1¾	½ x 1⅛	50	134
2 1/16	⅝ x 1 7/16	50	248

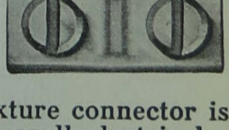
Prices on application.

SHERMAN FIXTURE CONNECTORS

SOLDERLESS CONNECTORS

For All Wire No. 12 or Smaller



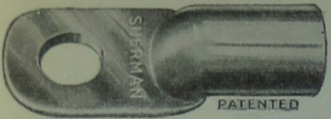


The use of the Sherman fixture connector is an approved method of making small electrical connections. Will connect all wires up to No. 12 with a maximum of two No. 12 solid or three No. 14 in either end. Attractively packed in small, neat containers, insuring neat shelf stock and safe deliveries.

Carton, 100 each. Standard package, 500 (5 cartons). Weight of standard package, 12 pounds.

Prices on application.

SHERMAN SOLDERING LUGS



U. S. Pat. Reissue 14401

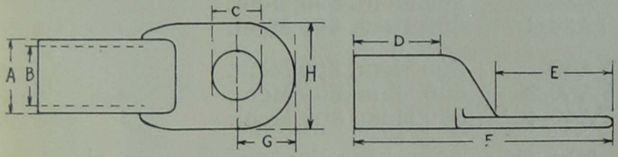
Lugs are seamless all around. The solder cannot leak out at the closed end. Also better conductivity is secured. Round end lugs in small sizes are recommended.

Approved by Underwriters' Laboratories.

1-Hole

Size Inches	Amp. Cap. Rubber Ins. Conductors N.E.C. Std.	Maximum Stranded Wire B. & S. Gauge	Carton Qty.	Approx. Weight Pounds per 1000
3/16	25	10	250	4
¼	35	8	200	6
5/16	50	6	200	11
⅜	70	4	125	17
7/16	90	2	100	24
½	125	0	100	35
9/16	150	00	100	46
⅝	175	000	100	60
11/16	225	0000	50	80
13/16	237	*250000	25	120
15/16	325	*400000	Bulk	225
1	362	*450000	Bulk	285
1 1/16	400	*500000	Bulk	380
1⅛	450	*600000	Bulk	420
1 5/16	550	*800000	Bulk	705
1 7/16	650	*1000000	Bulk	788
1¾	850	*1500000	Bulk	1470
2 1/16	1050	*2000000	Bulk	2765

Approximate Dimensions, Inches



A	B	C	D	E	F	G	H
3/16	.1368	11/64	⅜	15/32	15/16	7/32	9/32
¼	.186	13/64	⅜	½	1 1/32	7/32	⅜
5/16	.232	13/64	⅜	19/32	1 7/32	¼	7/16
⅜	.285	9/32	7/16	11/16	1 11/32	9/32	17/32
7/16	.336	9/32	½	¾	1½	11/32	⅝
½	.398	11/32	⅝	13/16	1¾	13/32	¾
9/16	.461	13/32	11/16	15/16	2	7/16	13/16
⅝	.511	13/32	25/32	1	2⅛	½	29/32
11/16	.559	13/32	27/32	1 5/32	2 9/32	17/32	31/32
13/16	.651	13/32	31/32	1¼	2⅝	⅝	1 3/16
15/16	.776	13/32	1 3/16	1⅝	3⅜	¾	1 13/32
1	.82	13/32	1¼	1¾	3 7/16	13/16	1½
1 1/16	.88	13/32	1½	2⅛	4 1/16	15/16	1 9/16
1⅛	.943	13/32	1⅝	2¼	4 7/16	1	1 11/16
1 5/16	1.084	17/32	2	2½	5	1⅛	1 15/16
1 7/16	1.21	29/32	2	2½	5⅜	1 3/16	2⅛
1¾	1.46	1 1/32	2⅜	3⅛	6⅝	1 7/16	2⅝
2 1/16	1.66	1 1/32	2⅝	3⅝	7½	1⅝	3 1/16

*Circular mils. Sizes ¼ to 13/16-inch furnished round end, unless otherwise specified. Sizes 15/16-inch and larger furnished square end unless otherwise specified.

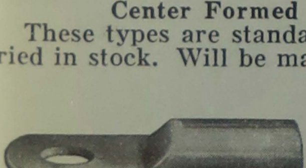
STUD HOLE—Lugs furnished with special size or location of stud holes at same prices as for regular lugs, with extra charge for each size.

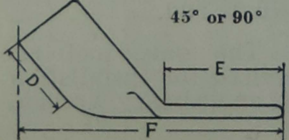
TINNING—Lugs tinned inside of tubular portion will be furnished at extra charge, depending on size.

MARKING—For identification, as approved fittings, lugs will be marked with letter S and Underwriters' rating in amperes, placed crosswise of the flat portion at wire end.

Center Formed and Angle Lugs

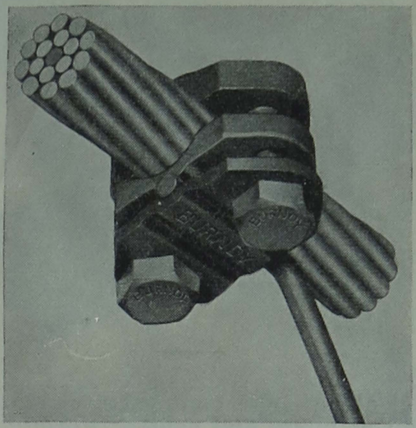
These types are standard but not regularly carried in stock. Will be made up promptly to order.





BURNDY ELECTRICAL CONNECTORS

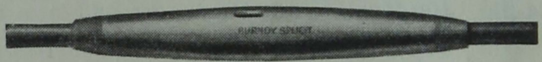
UNITAP—TYPE BPG



An efficient cable clamp for tapping copper or aluminum wire or cable from a run of ACSR which is protected by armor rod. To compensate for relaxation or reduction in cross-sectional area of the armor rod due to clamping over extended periods, a heavy spring plate is provided which "breathes" with the cable, thus keeping the conductors under constant pressure. ACSR to galvanized steel conductor types are also available. Prices on request.

BURNDY SPLICIT

TYPE DS FOR COPPER WIRE OR CABLE



The Splicit is an automatic line splice for joining wires or cables on end without the use of tools. In order to install the connector it is simply necessary to insert a wire end into each end of the Splicit.

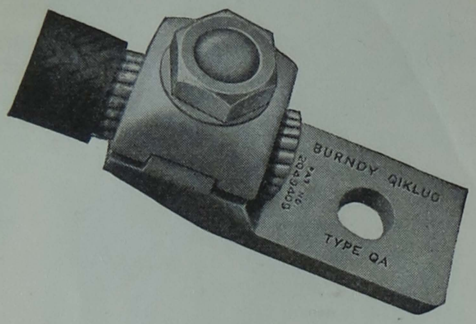
Conductor Range: Copper	Conductor Range: Copper Copperweld	No. of Strands	Cat. No.	Std. Pkg.	Shpg. Wt. Lbs. Per 100
8 Str. 6 Sol.	9½ D, 8C	7 1	DS6W	50	17
6 Str., 5 Str. 5 Sol., 4 Sol.	8D, 8A, 7A	7 1	DS4W	50	21
4 Str., 3 Str. 3 Sol., 2 Sol.	6A	7 1	DS2W	50	29
2 Str. 1 Sol.	4A	7 1	DS2C	25	38
1 Str. 1/0 Sol.	3A	7 1	DS1C	25	48
1/0 Str. 2/0 Sol.	2A	7 1	DS25	25	58
2/0 Str. 3/0 Sol.	......	7 1	DS26	25	75
3/0 Str. 4/0 Sol.	......	7 or 19 1	DS27	25	100
4/0 Str.	......	7 or 19	DS28	25	135
250 Mcm.	......	7 or 19	DS29	25	170

When ordering, specify catalog number and conductor size.

BURNDY ELECTRICAL CONNECTORS

QIKLUG OF FORGED COPPER ALLOY

Type QA-F for Copper Cable



A forged clamp type connector for easy, rapid termination of wires and cables. Forging enables the use of high strength, high conductivity copper alloys and results in a terminal of minimum dimensions. In addition, each conductor accommodates a range of conductor sizes.

Cat. No.	Cable Size	No. Holes in Contact Pad	Shpg. Wt.Lbs. Per 100	List Price Each
QA8C-F	14 Sol. to 8 Str.	1	4½	**$0.40**
QA4C-F	6 Sol. to 4 Str.	1	7	**.50**
QA1C-F	4 Str. to 1 Str.	1	13½	**.70**
QA26-F	1/0 Str. to 2/0 Str.	1	24½	**1.10**
QA26-2F	1/0 Str. to 2/0 Str.	2	28	**1.30**
QA28-F	3/0 Str. to 4/0 Str.	1	33	**1.50**
QA28-2F	3/0 Str. to 4/0 Str.	2	38	**1.70**
QA31-F	250 Mcm. to 350 Mcm.	1	52	**2.40**
QA31-2F	250 Mcm. to 350 Mcm.	2	57	**2.80**
QA34-F	400 Mcm. to 500 Mcm.	1	76	**2.90**
QA34-2F	400 Mcm. to 500 Mcm.	2	83	**3.30**

SCRULUG—TYPE KPA

For Wire or Cable

TYPE KPA
PAT. PEND.
BURNDY
SCRULUG

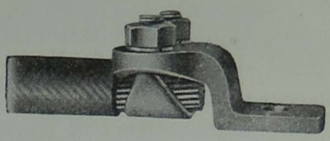
This lug combines the advantages of low cost with high conductivity, compactness and ease of installation. A pressure strip that slides up and down prevents damage to the conductor as a result of the rotation of the screw. The design is such that each lug will take a large variety of conductor sizes so that a small stock will accommodate a wide range of applications.

Cat. No.	Conductor Range Minimum	Conductor Range Maximum	N.E.C. Conductor Rating (Rub. Ins.)	Std. Pkg.	Shpg. Wt. Lbs. Per 1000
KPA8C	14 Sol.	8 Str.	35A	250	23
KPA4C	8 Sol.	4 Str.	70A	250	35
KPA25	4 Str.	1/0 Str.	125A	100	80
KPA28	1/0 Str.	4/0 Str.	225A	25	250

Prices on request.

BURNDY ELECTRICAL CONNECTORS

VARILUG—TYPES VA AND VAA



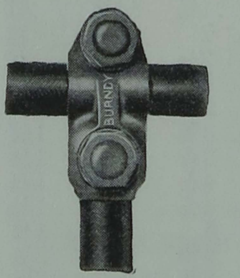
The Varilug is designed to accommodate a wide range of conductor sizes. The flattened U-bolt will not cut into or damage the strands. The double U-bolt type is recommended where the cable is under considerable strain.

Recommended especially for use with flexible and extra-flexible cables.

Cat. No.	Cable Range From	Cable Range To	Shpg. Wt. Lbs. Per 100	List Price Each
***VA4C**	8 Str.	4 Str.	25	**$0.60**
***VA2C**	6 Str.	2 Str.	25	**1.00**
***VA25**	6 Str.	1/0 Str.	50	**1.50**
***VA25-2**	6 Str.	1/0 Str.	55	**1.50**
VA28	1/0 Str.	4/0 Str.	75	**2.00**
VA28-2	1/0 Str.	4/0 Str.	80	**2.00**
VA30	1/0 Str.	300 Mcm.	100	**2.50**
VA30-2	1/0 Str.	300 Mcm.	110	**2.50**
VA34	300 Mcm.	500 Mcm.	150	**3.20**
VA34-2	300 Mcm.	500 Mcm.	160	**3.20**
VA34-4	300 Mcm.	500 Mcm.	175	**3.20**
VA40	500 Mcm.	800 Mcm.	200	**4.50**
VA40-2	500 Mcm.	800 Mcm.	210	**4.50**
VA40-4	500 Mcm.	800 Mcm.	225	**4.50**

*On these sizes, Servits are used as clamping elements instead of V-bolts.

QIKTAP—TYPE QT



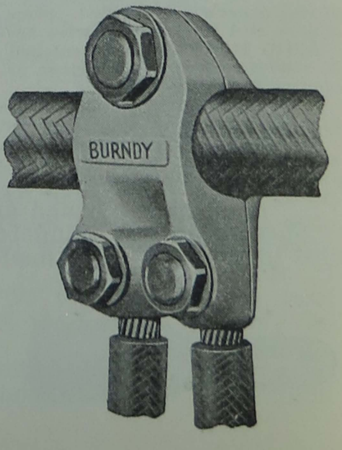
A compact T-connector for cable. High compression contacts enforced by large bolts and nuts. Same wrench setting operates both nuts. Locked against loosening from any form of vibration.

Supplied for all combinations of cables in sizes from 2 to 2,000,000 CM in both cable run and cable tap.

QIKTAP — TYPE Q2T

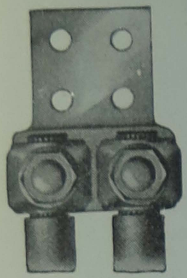
A double tap frequently used on transformer connections. Neat in appearance and very easy to install. Available, where desired, for more than two cable taps from a single run.

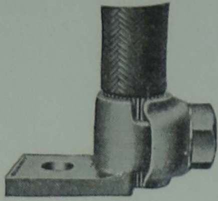
The only tool required for installation is an ordinary wrench.

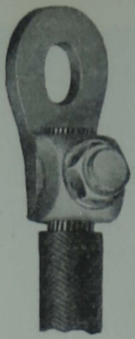


BURNDY ELECTRICAL CONNECTORS

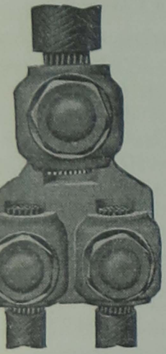
TYPE QA QIKLUG VARIATIONS


Type Q2A


Type QA-90


Type QAB

Shown above are several of the many variations of the Burndy Qiklug—terminals designed for multiple cable accommodation, unusual angles, long cable drops and other requirements. When ordering specify tongue dimensions and drilling.



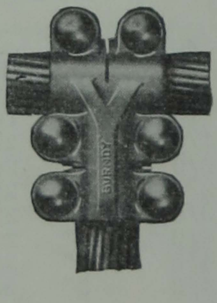
TWIN LINK—TYPE Q2R

For connecting two cables to one cable on end, the connector shown has been successfully used. Where desired, the two cable sockets can be arranged back to back.

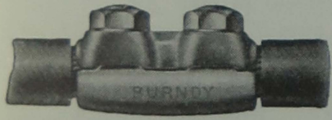
Special end-to-end connectors for joining cables of equal or different diameters, single or in multiple, can be supplied on short notice. Details on request.

T-CONNECTOR—TYPE NT

A multiple type T-Connector for cable run and cable tap in sizes from No. 4 to 2,000,000 CM. Oval-shank bolts permit rapid installation with a single wrench. High copper alloy body with Everdur bolts, nuts and lockwashers provide a complete corrosion resistant assembly. Recommended for use where continuous heavy current loads must be carried.



QIKLINK—TYPE QS

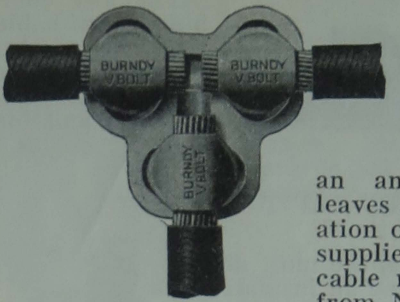


For joining two cables on end. Installed by simply tightening two Everdur nuts. Forms a neat and compact joint that is readily taped. Retains full salvage value. Electrically it will remain cooler than the cables under overload conditions. Can be supplied with individual caps.

Cat. No.	Cable Size	Wt.Lbs. Per C	List Price Each	Cat. No.	Cable Size	Wt.Lbs. Per C	List Price Each
QS8C	8 Str.	31	**$0.80**	**QS27**	3/0 Str.	88	**$1.80**
QS6C	6 Str.	31	**.80**	**QS28**	4/0 Str.	88	**2.20**
QS4C	4 Str.	33	**.80**	**QS29**	250 Mcm.	90	**2.60**
QS3C	3 Str.	42	**1.00**	**QS30**	300 Mcm.	91	**3.00**
QS2C	2 Str.	42	**1.00**	**QS31**	350 Mcm.	114	**3.50**
QS1C	1 Str.	45	**1.00**	**QS32**	400 Mcm.	117	**4.00**
QS25	1/0 Str.	59	**1.20**	**QS33**	450 Mcm.	165	**4.60**
QS26	2/0 Str.	76	**1.50**	**QS34**	500 Mcm.	165	**5.20**

BURNDY ELECTRICAL CONNECTORS

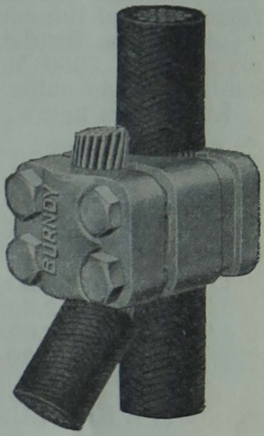
VARITAP—TYPE VST



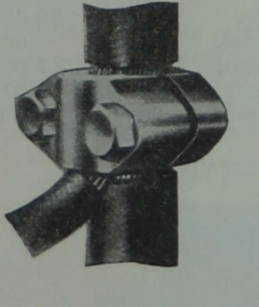
A three-way connector, used for cables of equal or different diameters. Where run conductors meet at an angle, or the tap leaves at an angle, a variation of this type can be supplied. Available in cable run and cable tap from No. 8 to 2,000,000 CM.

GUTTER TAP TYPE QPR

A high copper alloy gutter tap which will accommodate a range of cable sizes in either groove, thus reducing the number of sizes necessary to keep in stock. High strength Everdur bolts clamp the conductors securely in place. All edges and corners are well rounded in order to provide an easily taped assembly. Dimensions available on request.



Cat. No.	Run Range From	Run Range To	Tap Range From	Tap Range To	Shpg. Wt Lbs. Per100	List Price Each
QPR4C4C	8 Sol.	4 Str.	8 Sol.	4 Str.	44	**$1.20**
QPR2C4C	6 Str.	2 Str.	8 Sol.	4 Str.	45	**1.20**
QPR2C2C	6 Str.	2 Str.	6 Str.	2 Str.	46	**1.40**
QPR264C	3 Str.	2/0 Str.	8 Sol.	4 Str.	48	**1.40**
QPR262C	3 Str.	2/0 Str.	6 Str.	2 Str.	50	**1.40**
QPR2626	3 Str.	2/0 Str.	3 Str.	2/0 Str.	55	**1.40**
QPR284C	1 Str.	4/0 Str.	8 Sol.	4 Str.	50	**1.60**
QPR282C	1 Str.	4/0 Str.	6 Str.	2 Str.	51	**1.60**
QPR2826	1 Str.	4/0 Str.	3 Str.	2/0 Str.	57	**1.80**
QPR2828	1 Str.	4/0 Str.	1 Str.	4/0 Str.	64	**2.00**
QPR314C	3/0 Str.	350 Mcm.	8 Sol.	4 Str.	53	**2.20**
QPR312C	3/0 Str.	350 Mcm.	6 Str.	2 Str.	54	**2.20**
QPR3126	3/0 Str.	350 Mcm.	3 Str.	2/0 Str.	61	**2.20**
QPR3128	3/0 Str.	350 Mcm.	1 Str.	4/0 Str.	62	**2.40**
QPR3131	3/0 Str.	350 Mcm.	3/0 Str.	350 Mcm.	85	**2.80**



GUTTER TAP—TYPE QP

A simple and efficient cable clamp, installed by merely tightening two Everdur cap screws. In the smaller sizes, the two cables are forced into pressure contact with one another.

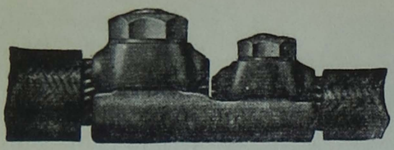
Available for cable sizes up to 2000 Mcm. for both cable run and cable tap.

List prices below.

	Cable Tap						
Cable Run	8, 6 or 4	2	1	1/0	2/0	3/0	4/0
8, 6 or 4	**$1.20**	....	....	....	....	....	....
2	**1.20**	**$1.40**	....	....	....	....	....
1	**1.40**	**1.40**	**$1.40**	....	....	....	....
1/0	**1.40**	**1.40**	**1.40**	**$1.40**	....	....	....
2/0	**1.40**	**1.40**	**1.40**	**1.40**	**$1.40**	....	....
3/0	**1.40**	**1.40**	**1.60**	**1.60**	**1.60**	**$1.60**	....
4/0	**1.60**	**1.60**	**1.80**	**1.80**	**1.80**	**1.90**	**$2.00**

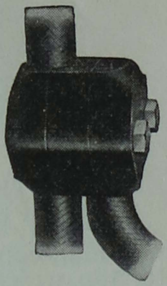
BURNDY ELECTRICAL CONNECTORS

QIKREDUCER—TYPE QR



For any combination of cable sizes. Can also be modified for any angle combination and for multiple cables.

INSULATED TAPIT—TYPE PG

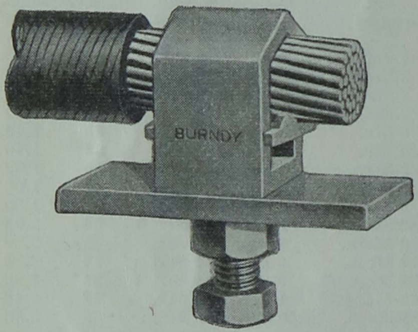


In close quarters, the most difficult part of making an insulated cable joint is the taping operation. The use of the Insulated Tapit eliminates this operation entirely, as a jacket of Canvas-Bakelite forms part of the connector itself. Tapit can be furnished for cable sizes up to 2000 Mcm. for both cable run and cable tap.

List prices below.

	Cable Tap						
Cable Run	8, 6 or 4	2	1	1/0	2/0	3/0	4/0
8, 6 or 4	**$2.20**	....	....	....	....	....	....
2	**2.20**	**$2.40**	....	....	....	....	....
1	**2.40**	**2.40**	**$2.40**	....	....	....	....
1/0	**2.60**	**2.60**	**2.60**	**$2.60**	....	....	....
2/0	**2.60**	**2.60**	**2.60**	**2.60**	**$2.60**	....	....
3/0	**3.00**	**3.00**	**3.20**	**3.20**	**3.20**	**$3.20**	....
4/0	**3.20**	**3.20**	**3.40**	**3.40**	**3.40**	**3.50**	**$3.60**

TYPE KPF CURRENT TRANSFORMER TERMINAL



An economical and very rigid current transformer terminal which is easily installed, has a large conductor range, and permits cable tapoff at any angle in a plane parallel to the transformer lead.

Cat. No.	Cable Range	Shpg. Wt. Lbs.	List Price Each
KPF26	No. 8 Sol.— 2/0 Str.	½	**$0.60**
KPF29	No. 4 Str.— 250 Mcm.	¾	**.80**
KPF34	No. 2 Str.— 500 Mcm.	1	**1.00**
KPF40	2/0 Str. — 800 Mcm.	1½	**1.25**
KPF44	500 Mcm.—1000 Mcm.	1¾	**1.50**

PARALLEL CLAMP—TYPE CP

A parallel clamp having a wide variety of uses in making parallel or oblique connections. Body of high copper alloy with Everdur bolts, nuts and lockwashers provide a clamp highly resistant to corrosion. Ample contact surface and great bolting pressure due to high strength bolts assure full conductivity without heating even through overload. Prices and dimensions on request.

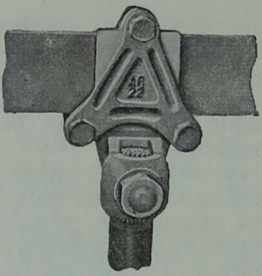
BURNDY ELECTRICAL CONNECTORS

FLEXIBLE COPPER BRAID—TYPE BB

Made up of extra flexible flat, tinned copper braid with seamless copper ferrules at each end. Bolt holes drilled 13/32-inch unless otherwise specified. Can be supplied with three or more braids in one ferrule, if desired.

Cat. No.	Capacity in Amps. Indoors	List Price 12 In. Lgth.	Add to List for Each Extra Inch
BBO77L12-1	200	**$1.60**	**$0.04**
BBO77L12-2	340	**2.20**	**.08**
BB154L12-1	325	**2.20**	**.08**
BB154L12-2	540	**3.05**	**.16**
BB226L12-1	400	**2.20**	**.08**
BB226L12-2	680	**3.05**	**.16**
BB300L12-1	480	**3.05**	**.16**
BB300L12-2	820	**4.15**	**.22**

SINGLE TANG BARTAP—TYPE QAF

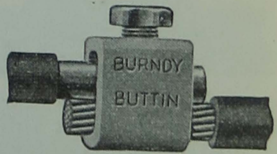


A combination of bar tap and A-clamp. This makes it possible to tap a cable from a bar without drilling holes in the bar. The A-clamp can be supplied with both parts in bronze, in malleable, or half bronze, half malleable. Number of bars must be specified to determine bolt length.

Conductors listed below are for bars ¼-inch thick spaced ¼-inch apart.

		CLAMP Half Bronze—Half Galv. Malleable		CLAMP All Bronze		
Cable Size	Width of Bars	Cat. No.	List Price Each	Cat. No.	List Price Each	Shpg. Wt. Lbs. Per 100
		QAFR-		**QAFB-**		
2 Str.	2″	**2C-2**	**$5.10**	**2C-2**	**$6.10**	211
1 Str.	2″	**1C-2**	**5.10**	**1C-2**	**6.10**	215
1/0	2″	**25-2**	**5.40**	**25-2**	**6.40**	221
2/0	2″	**26-2**	**5.60**	**26-2**	**6.60**	227
2/0	3″	**26-3**	**5.90**	**26-3**	**7.10**	282
3/0	2″	**27-2**	**6.10**	**27-2**	**7.10**	237
3/0	3″	**27-3**	**6.40**	**27-3**	**7.60**	294
4/0	2″	**28-2**	**6.10**	**28-2**	**7.10**	241
4/0	3″	**28-3**	**6.40**	**28-3**	**7.60**	298

BUTTIN—TYPE KP



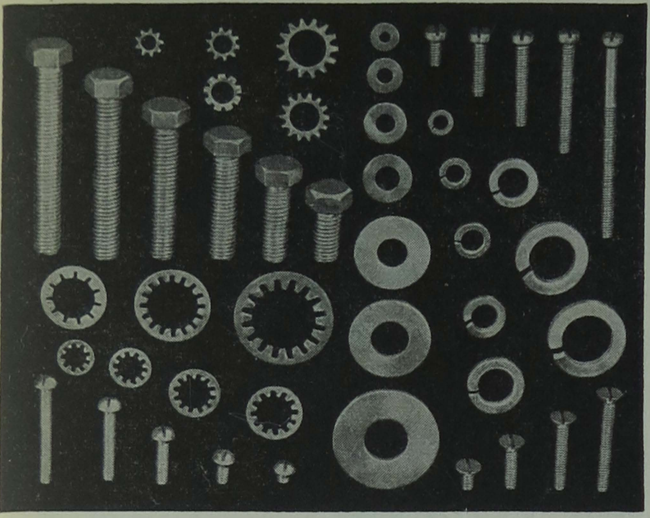
An inexpensive, efficient house service connector for attaching wires and cables on end. Everdur screw forces the two conductors together. Easily installed.

The Buttin is especially useful for making connections between service drop conductors and house entrance leads. It is easy to tape and provides a secure, low-resistance joint.

Cat. No.	Maximum Conductor Size Solid	Maximum Conductor Size Stranded	Std. Pkg.	Shpg. Wt. Lbs. Per 100	List Price Per 100
KP6C	5	6	100	1¾	**$10.00**
KP4C	3	4	100	3	**13.00**
KPR6C	5	6	100	1¾	**15.00**

BURNDY EVERDUR HARDWARE

EVERDUR BOLTS, NUTS, WASHERS, AND SCREWS



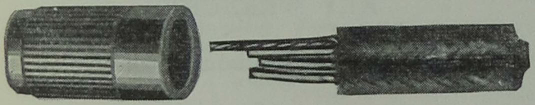
Burndy Everdur bolts and cap screws are highly corrosion-resistant and stronger than mild steel. Non-magnetic and free from galvanic action when in contact with copper. Made to American Manufacturers' Standards. Unless otherwise specified, nuts will be supplied with bolts, but not with cap screws. Palnut, shakeproof or spring type nut locking devices can be supplied.

Special forms fabricated of this high-strength, corrosion-resistant alloy, can be supplied.

Prices and dimensions supplied on request.

IDEAL "WIRE-NUTS"

SOLDERLESS—TAPELESS WIRE CONNECTORS

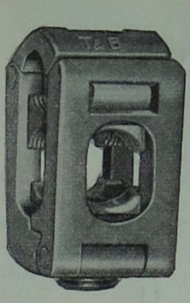


Ideal connectors replace solder and tape, plug connections, terminal blocks, binding posts, etc. They are intended for all roughing-in joints, fixture hanging, connections in appliances, fixtures, machinery, tools, signs, radios, etc. Approved by Underwriters' and Factory Mutual Laboratories. Approved by National Electrical Code.

For Following Joints:	List Per 100	List Per 1000
No. 72 Fixture Appliance Connector		
Nos. 14, 16 and 18 wires, Solid or Stranded up to a maximum of 3 No. 18 AWG wires or Equal Combinations. (wt. per 100, ½ lb.)	$2.25	$18.75
No. 73 Junior Universal Size		
Nos. 14, 16 and 18 Wires, Solid or Stranded up to a maximum of 2 No. 14 and 2 No. 18 or 4 No. 16, or 5 No. 18 AWG Wires or Equal Combinations. (wt. per 100, ¾ lb.)	$2.88	$24.00
No. 74 Standard Universal Size		
Nos. 12, 14, 16 and 18 Wires, Solid or Stranded up to a maximum of 2 No. 12 and 1 No. 18, or 4 No. 14 and 1 No. 18 AWG Wires or Equal Combinations. (wt. per 100, 1¾ lb.)	$4.05	$33.75
No. 76 Large Universal Size		
Nos. 10, 12, 14, 16, and 18 Wires, Solid or Stranded up to a maximum of 3 No. 10 with 1 No. 18, 6 No. 14 with 1 No. 18, or 4 No. 12 with 1 No. 18 AWG Wires or Equal combinations. (wt. per 100, 2¾ lb.)	$4.59	$38.25

T&B LOCK-TITE TEE-PARALLEL TAPS

Listed Under Reexamination Service of Underwriters' Laboratories



Patented

Six fittings will tap, tee or parallel, all combinations 1/0 to 500,000 CM on the main and No. 2 to 500,000 CM on the branch. Six fittings do the work of 264 conventional type tee and parallel taps.

All six sizes will take any type wire within their range as well as round or tubular bus of any equivalent diameters.

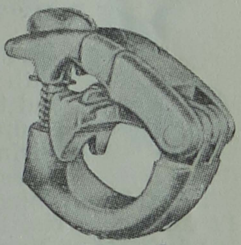
All six body sizes open wide to allow easiest imaginable assembly to main and branch. Each of these six fittings is All-One-Piece—no detachable parts.

Cat. No.	Cable Size: Main	Cable Size: Branch	Price Each
35003	1/0 to 4/0	No. 2 Sol. & Str. to No. 1	**$1.80**
35005	1/0 to 4/0	1/0 to 4/0	**2.40**
35007	4/0 to 300 MCM	No. 2 Sol. & Str. to 1/0	**2.20**
35009	4/0 to 300 MCM	2/0 to 300 MCM	**3.00**
35011	300 MCM to 500 MCM	No. 2 Sol. & Str. to 3/0	**3.90**
35013	300 MCM to 500 MCM	4/0 to 500 MCM	**5.20**

T&B "HINJON" JUNIOR TEE-PARALLEL TAP-IN ONE

For Mains No. 8 to 1000 MCM—For Small Wire Branches No. 14 to No. 1

Listed Under Reexamination Service of Underwriters' Laboratories



Patented

Twelve fittings take No. 8 to 1,000,000 on main and No. 14 to No. 1 on the branch. Branch can be installed from either side. Fittings are clearly marked to show range of main and branch. Installed with a screw driver, give positive contact, create tremendous pressure on the cable.

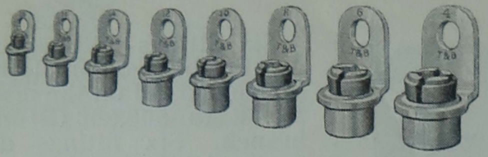
Will take any type wire, cable, or tubing, that will go into the fitting. Made of high conductivity bronze, these twelve fittings make a neat, compact and certain job. Simply skin the main, insert the branch and tighten. Tightening locks the threads—vibration-proof.

Cat. No.	Cable Size: Main	Cable Size: Branch	List Price Each
35107	No. 8 to No. 4	No. 14 to No. 8	**$0.85**
35108	No. 8 to No. 4	No. 8 to No. 4	**.90**
35109	No. 4 to 1/0	No. 14 to No. 4	**1.00**
35110	No. 4 to 1/0	No. 4 to No. 1	**1.20**
35111	1/0 to 4/0	No. 14 to No. 4	**1.40**
35112	1/0 to 4/0	No. 8 to No. 1	**1.50**
35113	4/0 to 300 MCM	No. 14 to No. 4	**1.60**
35114	4/0 to 300 MCM	No. 8 to No. 1	**1.80**
35115	300 MCM to 500 MCM	No. 14 to No. 4	**2.30**
35116	300 MCM to 500 MCM	No. 8 to No. 1	**2.80**
35118	500 MCM to 750 MCM	No. 14 to No. 1	**3.60**
35120	750 MCM to 1000 MCM	No. 14 to No. 1	**4.80**

T & B "WEDGE-ON" DEVICES

T&B "WEDGE-ON" LUGS

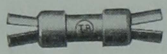
Approved by Underwriters' Laboratories



Cat. No.	Wire Size	Carton	Std. Pkg.	Wt.Lbs. Per 1000	List Per 100
18L100	22 to 18 S. & S.	100	200	4½	**$ 5.00**
16L100	16 S. & S.......	100	200	6½	**5.00**
14L100	14 S. & S.......	100	200	8	**5.00**
12L100	12 S. & S.......	100	200	10	**6.00**
10L100	10 S. & S.......	100	200	11	**7.00**
9L101	(See Note)....	100	200	15	**8.00**
8L100	8 S. & S.......	50	200	21	**8.00**
6L100	6 Stranded ..	50	200	28	**9.00**
6SL100	6 Solid	50	200	28	**9.00**
4L100	4 Stranded ..	50	200	32	**10.00**
4SL100	4 Solid	50	200	32	**10.00**

Terminals of special sizes and shapes can be furnished. No. 9L101 takes 19 strands of No. 22 control wire.

T & B "WEDGE-ON" WIRE SPLICERS

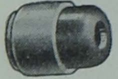


Made of high conductivity and high tensile strength bronze. For splicing one size smaller or larger wire on one end than on the other specify size for both ends. Use same price as the splicer listed for the larger wire size.

Cat. No.	Size S.&S.	Wt.Lbs. Per 100	Price Per 100	Cat. No.	Size S.&S.	Wt.Lbs. Per 100	Price Per 100
16C	16	2½	**$15.00**	**9C**	9	2	**$15.00**
14C	14	2½	**15.00**	**8C**	8	4½	**20.00**
12C	12	2½	**15.00**	**6C**	6	6	**25.00**
10C	10	2	**15.00**	**4C**	4	6	**25.00**

Standard package, 100.

T & B "WEDGE-ON" JOINTS



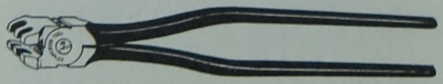
The "Wedge-On" Joint combines with the "Wedge-On" Wire Splicer and the "Wedge-On" Lug to make a completely solderless job of circuit wiring. The same tool installs all three fittings.

No. Q4 will take wire combinations from 2 No. 14 through 4 No. 14, 3 No. 12 or 2 No. 10; 3 No. 16; 5 No. 16; 2 No. 14; 3 No. 14; 4 No. 14; 1 No. 12 and 1 No. 16; 2 No. 12; 2 No. 12 and 1 No. 14; 1 No. 10 and 1 No. 14. Additional wire combinations on request.

No. Q5 will take wire combinations from 3 No. 14 through 7 No. 14, 5 No. 12 or 3 No. 10.

Cat. No.	Std. Pkg.	Unit Quan.	Wt. Lbs. Per 100	Price Per 100
Q4	200	100	1¾	**$6.00**
Q5	200	100	2½	**6.00**

"WEDGE-ON" TOOL

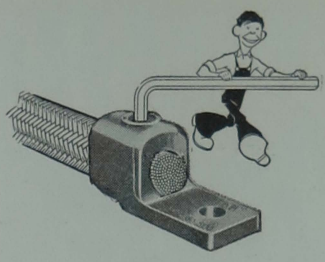


Especially designed for use with T&B "Wedge-On" Lugs, Splicers and Joints.

Cat. No.	For Terminal Sizes	Std. Pkg.	Wt.Lbs. Each	List Each
21000	8 to 16, Incl........................	1	1½	**$1.00**
21001	8, 6, and 4...........................	1	1½	**1.00**
21004	22, 18, 16, and 14...............	1	1½	**1.00**

T & B LOCK-TITE LUGS

Approved by Underwriters' Laboratories



Seven overlapping sizes fit all cables — No. 4 through 1,000,000 C.M.

Fits any kind of cable — solid, stranded, flexible, hemp-core, etc.

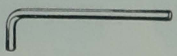
Resists vibration because it is locked tight.

One piece design — has no loose parts. Can be used over and over again.

Cat. No.	Description	No. Bolt Holes	Price Each	Use Key Wrench Cat. No.
31007	4 Sol. to 1 Str....................	1	**$0.70**	30
32007	4 Sol. to 1 Str....................	2	**.90**	30
31009	1 Sol. to 2/0.........................	1	**1.10**	30
32009	1 Sol. to 2/0.........................	2	**1.30**	30
31011	2/0 to 4/0	1	**1.50**	30
32011	2/0 to 4/0	2	**1.70**	30
31013	4/0 to 300,000 C.M...........	1	**1.90**	50
32013	4/0 to 300,000 C.M...........	2	**2.10**	50
31015	300,000 to 500,000 C.M.	1	**2.90**	50
32015	300,000 to 500,000 C.M.	2	**3.30**	50
31017	500,000 to 750,000 C.M.	1	**5.00**	50
32017	500,000 to 750,000 C.M.	2	**5.00**	50
31019	750,000 to 1,000,000 C.M.	1	**5.80**	50
32019	750,000 to 1,000,000 C.M.	2	**6.40**	50

For Hex-head screw, prefix above numbers with "H." Prices are same for both types. Special connectors can be supplied. Prices and information on request.

KEY WRENCHES

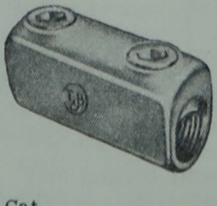


For use with Lock-Tite Lugs on all sizes.

Cat. No.	Fits Lock-Tite Lugs	Price Each
30	31007, 32007, 31009, 32009, 31011, 32011	**$0.20**
50	31013, 32013, 31015, 32015, 31017, 32017, 31019, 32019	**.30**

T&B LOCK-TITE TWO-WAY CONNECTORS

Listed Under Reexamination Service of Underwriters' Laboratories

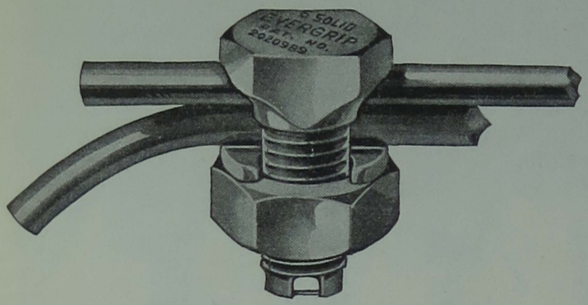


For Hex-Head Screws instead of Socket Screws prefix the Cat. No. with "H". Prices are the same for either type.

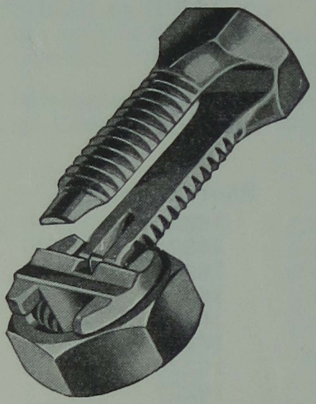
Cat. No.	Cable Size	Price Each
32507	4 Solid to 1 Stranded..............................	**$1.00**
32509	1 Solid to 2/0..	**1.50**
32511	2/0 to 4/0...	**2.20**
32513	4/0 to 300,000 C.M......................................	**3.00**
32515	300,000 C.M. to 500,000 C.M..............	**5.20**
32517	500,000 C.M. to 750,000 C.M................	**8.00**
32519	750,000 C.M. to 1,000,000 C.M.............	**10.00**

BLACKBURN ONE-PIECE EVERGRIP CONNECTORS—DURONZE

HINGE TYPE



Strong—Neat—Compact—No extending parts
Free running threads—No sharp corners



The one-piece Feature Eliminates waste — It is easily handled with heavy gloves

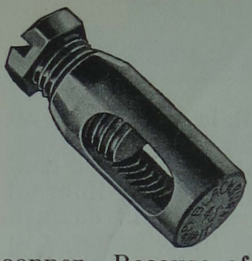
One-piece Evergrip Connectors are made from Duronze; 97 percent copper, will not season crack. Tensile strength 100,000 pounds per square inch.

Evergrip connectors appeal to the linemen. They like the ease in installation—the one-piece feature—the free running threads—the extreme strength. These important features speed up the job and lower the cost.

Connector Size	Wire Size B.&S. Gauge Solid	Wire Size B.&S. Gauge Stranded	Std. Pkg.	Price Per 100
10H	10	10	100	**$ 10.00**
8H	8	8	100	**11.60**
6H	6	8	100	**12.80**
4H	4	5	100	**15.60**
2H	2	3	100	**22.00**
1H	1	2	100	**24.00**
1/0H	1/0	1/0	50	**32.00**
2/0H	3/0	2/0	25	**52.80**
4/0H	4/0	4/0	25	**89.60**
350MCM	......	350MCM	12	**200.00**
500MCM	......	500MCM	12	**260.00**
750MCM	......	750MCM	6	**500.00**
1000MCM	......	1000MCM	6	**680.00**

Two-piece connectors same price.

BLACKBURN "GRIPIT" SERVICE ENTRANCE CONNECTORS



Used primarily for connecting service wires to the house wiring, but may be used for any end-to-end connection.

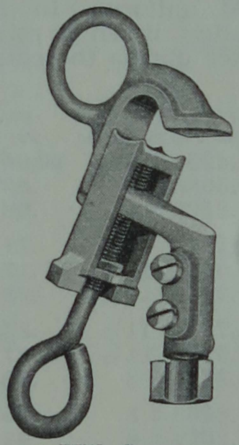
Gripits are made completely of Duronze, a silicon bronze actually stronger than steel and more resistant to corrosion than pure copper. Because of the circular construction the metal is where it is needed—along the line of pull of the screw. Gripits are very strong and will not distort when screwed up tightly.

Cat. No.	Max. Wire Size	Min. Wire Size	Std. Pkg.	List Price per 100
10S	Two No. 10 Str.	Two No. 14 Sol.	100	**$7.60**
6SL	Two No. 6 Str.	Two No. 12 Sol.	100	**8.00**
6SS	Two No. 6 Str.	One No. 6 Sol. &	100	**8.00**
4S	Two No. 4 Str.	One No. 8 Sol...	100	**9.60**

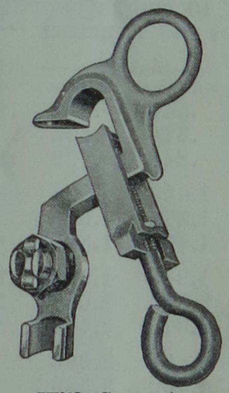
Service Entrance Connectors cannot be assorted with Split-Bolt to obtain quantity prices.

MATTHEWS HOT LINE CLAMPS

FOR COPPER OR ALUMINUM CONDUCTORS



With Screw Terminal



With Connector Terminal

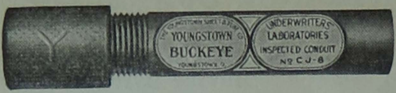
No. 5908 for copper conductors, is substantially made of high copper content castings, with bronze rod screw eye stud. The upper ring permits of hanging the clamp on the conductor with a hot tool. The yoke and screw stud permit of installation by most standard hot line tools for this purpose. Screw terminals are Everdur. Flange at bottom can be closed over the insulation of the jumper wire with a pair of pliers.

Nos. 5944 and 5945 for copper conductors, are made of the same substantial material and design as the No. 5908 except that the terminal is a Matthews Nutype Connector, either for No. 2 or No. 4 solid wire. The connectors also fit smaller solid or stranded wires. The flange at the bottom closes tightly over the insulation of the copper jumper wire. Use these clamps for temporary or permanent connections.

Cat. No.	Kind of Conductor	Maximum Size of Conductor	Maximum Size of Copper Jumper Wire	Price Each
		With Screw Terminal		
5908	Copper	4/0 Strand	2 Solid	**$1.36**
5908A	Aluminum	2/0 ACSR	2 Solid	**1.44**
		With Connector Terminal		
5944	Copper	4/0 Strand	2 Solid	**1.50**
5944A	Aluminum	2/0 ACSR	2 Solid	**1.60**
5945	Copper	4/0 Strand	4 Solid	**1.44**
5945A	Aluminum	2/0 ACSR	4 Solid	**1.54**

Shipping weight each, 1 pound.

YOUNGSTOWN-BUCKEYE CONDUIT



Youngstown-Buckeye Conduit is offered in all regular sizes and in black enameled, hot-galvanized and electro-galvanized finish. Galvanized conduit is coated on both the external and internal surfaces with a tough elastic transparent enamel. This enamel is baked on both of these surfaces in large ovens, the temperature of which is controlled by pyrometers. This transparent coating is sufficiently elastic to preclude any possibility of chipping, cracking or flaking off when the conduit is bent. It not only provides a protective coating but produces a smooth raceway through which wires may be readily fished. Its superiority is thoroughly established by many tests and it is fully approved by the Underwriters' Laboratories, Inc.

Step by step through all stages of its manufacture, from ore to finished product, a most exacting standard is strictly maintained. The pipe used is all specially selected for its ductility and perfection of weld from the output of our 22 tube mills. All threads are carefully cut and protected. Diameters are accurate and uniform. In the largest installation or the smallest, it can be relied upon to render worthy service during the entire life of the structure.

Size Inch	Diameters External	Diameters Internal	Thickness	Wt. Lbs. Per Ft.	Threads Per Inch	Price Per Ft.
¼	.540	.364	.088	.425	18	**$0.08½**
⅜	.675	.493	.091	.568	18	**.08½**
½	.840	.622	.109	.852	14	**.08½**
¾	1.050	.824	.113	1.134	14	**.11½**
1	1.315	1.049	.133	1.684	11½	**.17**
1¼	1.660	1.380	.140	2.281	11½	**.23**
1½	1.900	1.610	.145	2.731	11½	**.27½**
2	2.375	2.067	.154	3.678	11½	**.37**
2½	2.875	2.469	.203	5.819	8	**.58½**
3	3.500	3.068	.216	7.616	8	**.76½**
3½	4.000	3.548	.226	9.202	8	**.92**
4	4.500	4.026	.237	10.889	8	**1.09**
4½	5.000	4.506	.247	12.642	8	**1.27**
5	5.563	5.047	.258	14.810	8	**1.48**
6	6.625	6.065	.280	19.185	8	**1.92**

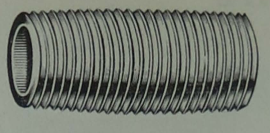
Couplings			Elbows			
Size Inch	Wt. Lbs. Per 100	Price Each	Radius Inches	Offset Inches	Wt. Lbs. Per 100	Price Each
¼	6.0	**$0.05**	3.850	6.375	41	**$0.19**
⅜	9.5	**.06**	3.917	6.437	55	**.19**
½	11.6	**.07**	4.000	6.500	82	**.19**
¾	20.9	**.10**	4.500	7.250	109	**.25**
1	34.3	**.13**	5.750	8.625	201	**.37**
1¼	53.5	**.17**	7.250	10.000	313	**.45**
1½	74.3	**.21**	8.250	11.000	441	**.60**
2	120.8	**.28**	9.500	13.625	707	**1.10**
2½	172.0	**.40**	10.500	15.687	1411	**1.80**
3	249.8	**.60**	13.000	17.750	1850	**4.80**
3½	424.1	**.80**	15.000	20.000	2979	**10.60**
4	474.1	**1.00**	16.000	21.312	3528	**12.25**
4½	550.0	**1.50**	18.000	23.500	4310	**18.55**
5	700.0	**1.65**	24.000	29.000	6575	**25.75**
6	750.0	**2.40**	30.000	36.500	9645	**32.00**

All weights and dimensions are nominal. All weights given in pounds. All dimensions in inches. The ends of all rigid conduit must be reamed on the inside to remove the burrs.

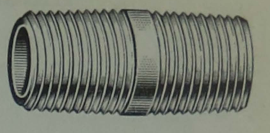
All rigid conduit 10 feet long in finished lengths. All sizes 1½ inches and under are bundled.

RIGID CONDUIT NIPPLES

Galvanized Finish Only



Close Nipple



Short Nipple

Right-hand thread. Note the deep, clear-cut threads.

Close Nipples

Pipe Size	Length Inches	Cat. No.	Carton Quan.	Price Schedule
⅛	¾	**16200**	100	"CFS"
¼	⅞	**16201**	100	"CFS"
⅜	1	**16202**	100	"CFS"
½	1⅛	**16203**	50	"CFS"
¾	1⅜	**16204**	25	"CFS"
1	1½	**16205**	25	"CFS"
1¼	1⅝	**16206**	20	"CFS"
1½	1¾	**16207**	10	"CFS"
2	2	**16208**	5	"CFS"
2½	2½	**16209**	5	"CFS"
3	2⅝	**16210**	5	"CFS"
3½	2¾	**16211**	1	"CFS"
4	2⅞	**16212**	1	"CFS"

Short Nipples

Pipe Size	Length Inches	Cat. No.	Carton Quan.	Price Schedule
⅛	1½	**16220**	100	"CFS"
¼	1½	**16221**	100	"CFS"
⅜	1½	**16222**	100	"CFS"
½	1½	**16223**	50	"CFS"
¾	2	**16224**	25	"CFS"
1	2	**16225**	25	"CFS"
1¼	2½	**16226**	5	"CFS"
1½	2½	**16227**	5	"CFS"
2	2½	**16228**	5	"CFS"
2½	3	**16229**	5	"CFS"
3	3	**16230**	5	"CFS"
3½	4	**16231**	1	"CFS"
4	4	**16232**	1	"CFS"

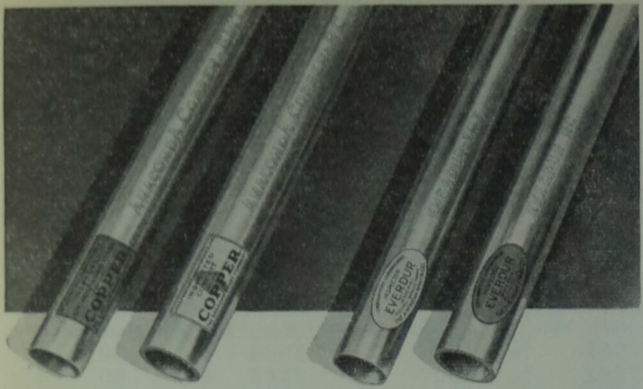
2 and 3-inch Long Conduit Nipples

	2-inch Long			3-inch Long		
Pipe Size	Cat. No.	Carton Quan.	Price Schedule	Cat. No.	Carton Quan.	Price Schedule
⅛	**16240**	50	"CFS"	**16260**	50	"CFS"
¼	**16241**	50	"CFS"	**16261**	50	"CFS"
⅜	**16242**	50	"CFS"	**16262**	50	"CFS"
½	**16243**	25	"CFS"	**16263**	25	"CFS"
¾	---------	----	---------	**16264**	25	"CFS"
1	---------	----	---------	**16265**	10	"CFS"
1¼	---------	----	---------	**16266**	5	"CFS"
1½	---------	----	---------	**16267**	5	"CFS"
2	---------	----	---------	**16268**	5	"CFS"

4 and 5-inch Long Conduit Nipples

	4-inch Long			5-inch Long		
Pipe Size	Cat. No.	Carton Quan.	Price Schedule	Cat. No.	Carton Quan.	Price Schedule
⅛	**16280**	50	"CFS"	**16300**	50	"CFS"
¼	**16281**	50	"CFS"	**16301**	50	"CFS"
⅜	**16282**	50	"CFS"	**16302**	50	"CFS"
½	**16283**	25	"CFS"	**16303**	25	"CFS"
¾	**16284**	25	"CFS"	**16304**	10	"CFS"
1	**16285**	10	"CFS"	**16305**	10	"CFS"
1¼	**16286**	5	"CFS"	**16306**	5	"CFS"
1½	**16287**	5	"CFS"	**16307**	5	"CFS"
2	**16288**	5	"CFS"	**16308**	5	"CFS"
2½	**16289**	5	"CFS"	**16309**	5	"CFS"
3	**16290**	5	"CFS"	**16310**	5	"CFS"
3½	---------	--	---------	**16311**	1	"CFS"
4	---------	--	---------	**16312**	1	"CFS"

ANACONDA ELECTRICAL CONDUIT



ANACONDA RIGID CONDUIT

Anaconda Copper and Everdur Rigid Conduit are supplied in nominal sizes from ¼- to 4-inch diameters inclusive. Unless otherwise specified, Rigid Conduit will be furnished in 10-ft. "unit lengths," with both ends threaded. A coupling is attached to one end of each unit length and the other end is covered with a thread protector.

Dimensions and Weights
Everdur and Copper Seamless Rigid Conduit

Nom. Size In.	Dimensions O.D. Inches	I.D. Inches	Wall Inches	Weights† Everdur Lb. per Foot	Weights† Copper Lb. per Foot
¼	.540	.382	.079	.4339	.4435
⅜	.675	.503	.086	.6034	.6168
½	.840	.636	.102	.8968	.9166
¾	1.050	.834	.108	1.212	1.239
1	1.315	1.075	.120	1.708	1.746
1¼	1.660	1.382	.139	2.519	2.574
1½	1.900	1.614	.143	2.993	3.059
2	2.375	2.077	.149	3.951	4.039
2½	2.875	2.519	.178	5.719	5.846
3	3.500	3.084	.208	8.157	8.338
3½	4.000	3.548	.226	10.16	10.39
4	4.500	4.026	.237	12.04	12.30

†Variations from these weights must be expected in practice.

EVERDUR SEAMLESS COUPLINGS

All Everdur Couplings for Rigid Conduit have tapered threads, resulting in stronger and tighter joints for hazardous locations.

ANACONDA ELECTRICAL METALLIC TUBING

Anaconda Copper and Everdur E.M.T. have thinner walls and weigh correspondingly less than Anaconda Rigid Conduit. They are available in standard 10-ft. lengths in nominal sizes from ⅜- to 2-inch diameters inclusive, with ends capped, for assembly with threadless Everdur Fittings which facilitate installations and dismantling.

Dimensions and Weights
Everdur and Copper Seamless E. M.T. Conduit

For Use with Threadless Fittings

Nom. Size In.	Dimensions O.D. Inches	I.D. Inches	Wall Inches	Weights† Everdur Lb. per Foot	Weights† Copper Lb. per Foot
⅜	.577	.493	.042	.2677	.2736
½	.706	.622	.042	.3322	.3396
¾	.922	.824	.049	.5096	.5209
1	1.165	1.049	.058	.7649	.7818
1¼	1.510	1.380	.065	1.119	1.144
1½	1.740	1.610	.065	1.297	1.326
2	2.197	2.067	.065	1.651	1.687

†Variations from these weights must be expected in practice.

YOUNGSTOWN ELECTRICAL METALLIC TUBING

Electrical Metallic Tubing is fabricated of high grade steel rolled into strips, formed into tubing and electrically welded. It is especially adaptable to welding and is easily bent.

On the external surface of all E.M.T. there is deposited a protective coating of pure zinc. On the inside is baked a tough, elastic coating of black enamel which not only forms a mirror-smooth race-way, but also serves as an efficient insulator for the wiring system.

After the special zinc coating and the internal black enamel have been applied, the tubing is given a coating, both externally and internally, of transparent enamel which serves as an additional protection.

All weights and dimensions are nominal. E.T.M. is furnished in 10-foot lengths without couplings and is designated by its inside diameter. Prices quoted on special sizes, bends and lengths on application.

TUBING

Size Inches	Diameter Internal	Diameter External	Approx. Wt. Lbs. 1000 Feet	Feet Per Bdl.
½	.622	.706	321	100
¾	.824	.922	488	50
1	1.049	1.163	711	50
1¼	1.380	1.508	985	50
1½	1.610	1.738	1141	50
2	2.067	2.195	1470	30

ELBOWS

Size Inches	Radius Inches	Offset Inches	Wt. Lbs. Per 100
½	--------	---------	------
¾	--------	---------	------
1	5.750	8.625	100
1¼	7.250	10.000	150
1½	8.250	11.000	200
2	9.500	13.625	275

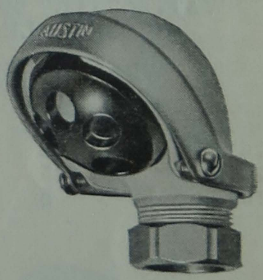
AUSTIN FITTINGS FOR ELECTRICAL METALLIC TUBING

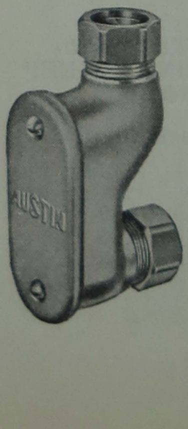
(Thin Wall Conduit)

"WATER-TITE" SERVICE ENTRANCE HEAD

Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
7541	½	10	50	76
7542	¾	10	50	84
7543	1	5	25	148
7544	1¼	1	10	210

Two of the 4 holes in cover are closed but can be knocked out when utilized.





"WATER-TITE" SERVICE ENTRANCE ELBOW

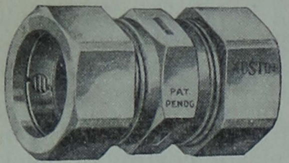
With Lock-on Cover

Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
7561	½	10	50	76
7562	¾	10	20	84
7563	1	5	10	140
7564	1¼	1	10	300

AUSTIN FITTINGS FOR ELECTRICAL METALLIC TUBING

(Thin Wall Conduit)

"WATER-TITE" THREADLESS COUPLINGS



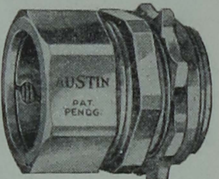
These couplings are of the compression type and listed by the Underwriters' laboratories.

Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 100
7601	½	50	200	13
7602	¾	25	100	15
7603	1	25	50	20
7604	1¼	5	25	50
7605	1½	2	10	80
7606	2	2	5	140

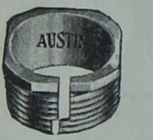
"WATER-TITE" THREADLESS CONNECTORS

Steel gland drops into position, and the nut tightens the gland securely to the electrical metallic tubing. Makes rigid watertight connection.

Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs Per 100
7621	½	50	200	11
7622	¾	25	100	13
7623	1	25	50	20
7624	1¼	5	25	50
7625	1½	2	10	60
7626	2	2	5	100



E.M.T. ADAPTERS

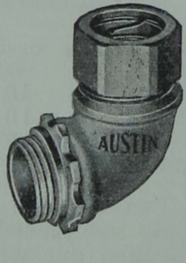


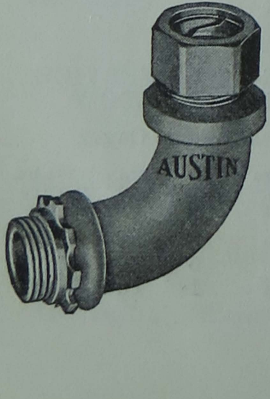
Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 100
750	½	50	200	2½
751	¾	25	100	5
752	1	25	50	6
753	1¼	10	20	10
754	1½	5	10	15
755	2	2	5	20

"WATER-TITE" 90-DEGREE SHORT ELBOW

With Steel Gland

Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 100
7671	½	25	50	22
7672	¾	25	50	32
7673	1	5	25	52





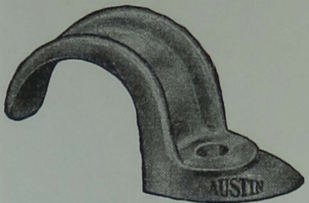
"WATER-TITE" 90-DEGREE LONG SWEEP ELBOW

With Steel Gland

Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 100
7681	½	25	100	30
7682	¾	5	50	52
7683	1	5	25	96
7684	1¼	5	25	136

AUSTIN FITTINGS FOR ELECTRICAL METALLIC TUBING

ONE-HOLE MALLEABLE IRON STRAPS



For Thin Wall Conduit

Made of malleable iron. galvanized. Fits electric metallic tubing perfectly.

Cat. No.	E.M.T. Size, In.	Std. Pkg.	Wt. Lbs. Per 100	Cat. No.	E.M.T. Size, In.	Std. Pkg.	Wt. Lbs. Per 100
7581	½	100	5	**7584**	1¼	50	10
7582	¾	100	6	**7585**	1½	50	16
7583	1	100	9	**7586**	2	25	17

B-M CONNECTORS AND COUPLINGS

B-M CONNECTOR

CONNECTOR
CAT. NO. BM-21
PAT. APP. FOR
UNDERWRITERS
LISTED

For use with Electrical Metallic Tubing. Cadmium finish.

Cat. No.	Size Inches	Carton	Std. Pkg.	Wt. Lbs. Per 100	Price per 100 Less Carton	Price per 100 Carton Quan.	Price per 100 Std. Pkg.
B-M 21	½	50	200	6	**$6.60**	**$5.83**	**$5.28**
B-M 22	¾	25	100	12	**9.62**	**8.58**	**7.70**
B-M 23	1	10	50	15	**16.77**	**14.90**	**13.42**

COUPLING
CAT. NO. BM-41
PAT. APP. FOR
UNDERWRITERS
LISTED

B-M COUPLING

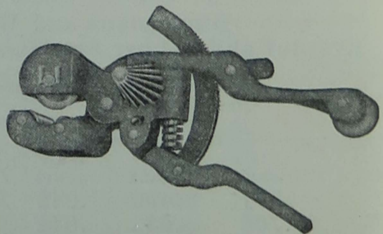
For use with Electrical Metallic Tubing. Cadmium finish.

Cat. No.	Size Inches	Carton	Std. Pkg.	Wt. Lbs. Per 100	Price per 100 Less Carton	Price per 100 Carton Quan.	Price per 100 Std. Pkg.
B-M 41	½	50	200	5	**$5.57**	**$5.11**	**$4.62**
B-M 42	¾	25	100	10	**7.70**	**6.65**	**6.16**
B-M 43	1	10	50	12	**12.37**	**11.00**	**9.90**

BRIEGEL METHOD TOOLS

For Use with Electrical Metallic Tubing

B-M TUBE CUTTER NO. 100



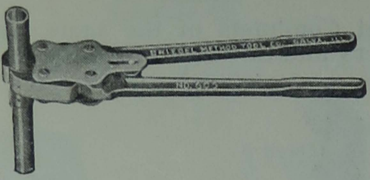
It is only necessary to compress the handles once to apply uniform pressure on the cutting wheel. The tube is cut perfectly square with no burr on outside and very little burr on the inside. A reamer is attached to remove the burr from the inside of the tube. Cuts ½-inch tube in 10 turns. For ½-inch to 1-inch sizes inclusive.

Price, No. **100** Tube Cutter...................... each **$4.95**
Cutter Wheel only for B-M Cutter Tool.......... **.50**

BRIEGL METHOD TOOLS

For Use with Electrical Metallic Tubing

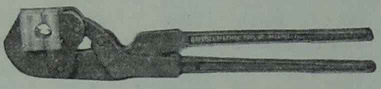
B-M INDENTER NO. 605



A small light tool for installing the ½-inch fittings only. Two squeezes on the handles, and the fitting is securely fastened to the Electrical Metallic Tubing.

Price, No. **605** Indenter............................each **$1.35**

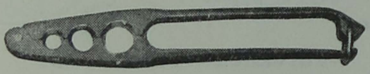
B-M INDENTER NO. 600



By means of interchangeable jaws this Indenter can be used with ½, ¾ or 1-inch fittings.

Description	Price Each
Indenter only	**$2.35**
½-inch Indenter Jaws, No. 6000	**1.65**
¾-inch Indenter Jaws, No. 6001	**1.65**
1-inch Indenter Jaws, No. 6002	**1.65**
Indenter Points for Nos. B-M 605, 6000, 6001, and 6002 Indenter Jaws....per doz.	**.25**

B-M TUBE HOLDER NO. 1000

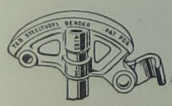


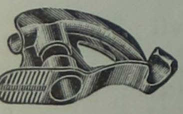
For ½ to 1-inch sizes inclusive. This simple tube holder enables user to easily hold the Electrical Metallic Tubing in one hand while cutting and burring the tube. Will not distort tube, or damage the outside finish of the tube.

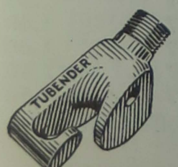
Price, No. **1000** Tube Holder.....................each **$1.25**

AUSTIN BENDING TOOLS

For Thin Wall Conduit



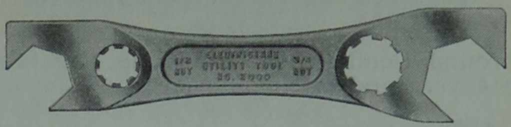




Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Each
	Benders		
TU-4195	½	1	2½
TU-4196	¾	1	4⅛
TU-4197	1	1	7
	Hickeys		
TU-4185	½	1	2
TU-4186	¾	1	3¾
	TU-1 Hickeys		
TU-1	½	1	1¾
TU-2	¾	1	2¾
TU-3	1	1	4

NO. 2000 UTILITY TOOL

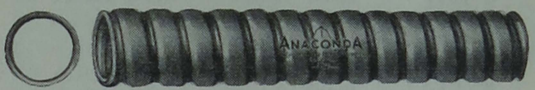
For All Electrical Metallic Tubing Jobs



Indispensable for use in Electrical Metallic Tubing work. The wrench ends will fit all locking nuts 15/16-inch and 1 3/16-inch hexagons used with ½-inch and ¾-inch Electrical Metallic Tubing. Drop forged from selected steel. Heat treated and tempered. Heavily plated with polished heads.

Cat. No.	Size Inch	Display Carton	Wt. Lbs. Per Doz.	Price Schedule
2000	½ and ¾	12	5	**"TW"**

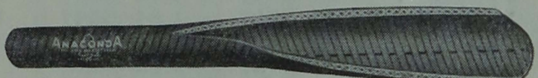
FLEXIBLE STEEL CONDUIT



Inside Dia. Inches	Approx. Dia. Overall Inches	Approx. Net Wt. M Feet Pounds	Lgth. in Coil	No. of Coils in Cart.	Shpg. Wt. Lbs. Std. Pkg.
5/16	.500	150	250′	Coil	41
⅜	.600	255	250′	Coil	68
½	.875	470	100′	Coil	52
¾	1.050	575	50′	Coil	32
1	1.360	1020	50′	Coil	55
1¼	1.700	1250	50′	Coil	67
1½	1.850	1625	25′	Coil	43
2	2.420	2125	25′	Coil	56
2½	2.950	2630	25′	Coil	71
3	3.400	3130	25′	Coil	75

ANACONDA FLEXIBLE NON-METALLIC CONDUIT

DURADUCT

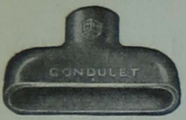


Duraduct, the original single-wall loom with the roller bearing wire-way is a tough, closely woven seamless, non-collapsible tubing. Its slippery inside finish, obtained by a patented process, makes fishing of wires easy, while the outer flame-retarding finish make it clean to handle. It cuts clean, is extremely flexible, can withstand severe abuse and will not clog. Bears Underwriters' labels.

Inside Dia. Inches	Approx. Inside Dia.	Dia. Overall Inches	Lgth. per Coil	Carton	Wt. Std. Pkg.
7/32	.297	.438	250′	1 Coil	9
¼	.328	.500	250′	1 Coil	10
⅜	.453	.656	250′	1 Coil	14
½	.563	.781	200′	1 Coil	15
⅝	.737	.906	200′	1 Coil	20
¾	.797	1.063	150′	1 Coil	28
1	1.047	1.345	100′	8 Crtd.	248
1¼	1.297	1.625	100′	7 Crtd.	327
1½	1.625	1.875	100′	7 Crtd.	347
1¾	1.875	2.125	100′	6 Crtd.	347
2	2.125	2.438	100′	4 Crtd.	265
2¼	2.375	2.688	100′	4 Crtd.	321
2½	2.875	2.960	100′	4 Crtd.	383

CROUSE-HINDS CONDULETS
OBROUND SERIES
Threaded and Threadless Condulets
Schedule CR

Obround Condulets of the same size take the same covers and wiring devices.

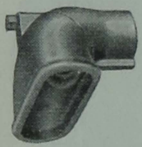


TYPE A

Size In.	Std. Pkg.	Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
		Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	100	A17	$0.23	A197	$0.30	A147	$0.30
¾	50	A27	.28	A297	.40	A247	.40
1	20	A37	.40	A397	.60	A347	.60
1¼	20	A47	.80	A497	.95	A447	.95
1½	10	A57	1.04	A597	1.25	A547	1.25
2	5	A67	2.14	A697	2.50	A647	2.50
2½	5	A77	4.20	A797	5.20	....	....
3	5	A87	5.00	A897	6.30	....	....
3½	5	A97	7.00	A997	9.90	....	....
4	5	A107	9.00	A1097	11.25	....	....
4½	1	A0117	11.50	....	....	....	....
5	1	A0127	14.00	....	....	....	....
6	1	A0147	20.25	....	....	....	....

TYPE B

One-piece Body
½ to 1 Inch


Two-piece Body
1¼ to 6 Inch

Size In.	Std. Pkg.	Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
		Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	100	B17	$0.23	B197	$0.30	B147	$0.30
¾	50	B27	.28	B297	.40	B247	.40
1	20	B37	.40	B397	.60	B347	.60
1¼	20	B47	1.25	B497	1.48	B447	1.48
1½	10	B57	1.50	B597	1.84	B547	1.84
2	5	B67	2.60	B697	3.20	B647	3.20
2½	5	B77	8.15	B797	9.15	....	....
3	5	B87	9.00	B897	10.30	....	....
3½	5	B97	15.25	B997	17.00	....	....
4	5	B107	17.00	B1097	19.25	....	....
4½	1	B0117	38.10	....	....	....	....
5	1	B0127	41.10	....	....	....	....
6	1	B0147	46.00	....	....	....	....

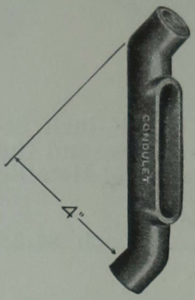
TYPE C

Size In.	Std. Pkg.	Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
		Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
⅛	50	C187	$0.25	....	....	....	....
¼	50	C287	.25	....	....	....	....
⅜	50	C387	.30	....	....	....	....
½	100	C17	.32	C197	$0.40	C147	$0.40
¾	50	C27	.36	C297	.50	C247	.50
1	20	C37	.52	C397	.75	C347	.75
1¼	20	C47	1.05	C497	1.35	C447	1.35
1½	10	C57	1.40	C597	1.90	C547	1.90
2	5	C67	2.40	C697	3.30	C647	3.30
2½	5	C77	5.00	C797	6.00	....	....
3	5	C87	6.50	C897	8.50	....	....
3½	5	C97	10.50	C997	11.50	....	....
4	5	C107	12.00	C1097	14.00	....	....

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS
OBROUND SERIES
Threaded and Threadless Condulets
Schedule CR

Obround Condulets of the same size take the same covers and wiring devices.

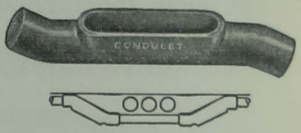


TYPE CO†

Size In.	Std. Pkg.	Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
		Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	50	CO17	$0.50	CO197	$0.60	CO147	$0.60
¾	50	CO27	.65	CO297	.83	CO247	.83
1	20	CO37	.75	CO397	1.01	CO347	1.01
1¼	10	CO47	1.25	CO497	1.71	CO447	1.71
1½	10	CO57	1.60	CO597	2.28	CO547	2.28
2	5	CO67	3.25	CO697	4.45	CO647	4.45
2½	5	CO777	5.20	....	....	....	....
3	5	CO87	7.90	....	....	....	....
3½	5	CO97	12.60	....	....	....	....
4	5	CO107	13.80	....	....	....	....

TYPE COV

Type COV Condulets connected by a nipple of suitable length form a convenient cross-over for two or more pipes or conduit.



Threaded—Thick Wall

Size In.	Size Pipe Crossed	Std. Pkg.	Cat. No.	Price Each
½	1¼	50	COV147	$0.50
¾	1¼	50	COV247	.65
1	1¼	20	COV347	.75
1¼	1½	10	COV457	1.25
1½	2	10	COV567	1.60
2	2½	5	COV677	3.25
2½	3½	....	Use CO777	
3	3½	....	Use CO87	
3½	3½	....	Use CO97	
4	3½	....	Use CO107	

TYPE CUB

Threaded—Thick Wall

Size In.	Size Pipe Crossed	Std. Pkg.	Cat. No.	Price Each
½	¾	25	CUB127	$0.75
½	1¼	25	CUB147	.85
¾	1¼	10	CUB247	.95
1	1¼	10	CUB347	1.40
1¼	1½	10	CUB457	1.90
1½	2	10	CUB567	2.40
2	2½	5	CUB677	4.80

†Type CO Condulet provides an offset of 4 inches in a conduit system.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

OBROUND SERIES

Threaded and Threadless Condulets

Schedule CR

Obround Condulets of the same size take the same covers and wiring devices.

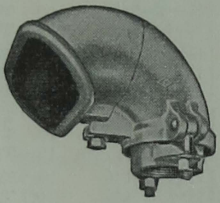
TYPE E

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	100	E17	$0.23	E197	$0.30	E147	$0.30
¾	50	E27	.28	E297	.40	E247	.40
1	20	E37	.40	E397	.60	E347	.60
1¼	20	E47	.80	E497	.95	E447	.95
1½	10	E57	1.04	7597	1.25	E547	1.25
2	5	E67	2.14	E697	2.50	E647	2.50
2½	5	E77	4.20	E797	5.20	-------	-------
3	5	E87	5.00	E897	6.30	-------	-------
3½	5	E97	7.00	E997	9.90	-------	-------
4	5	E107	9.00	E1097	11.25	-------	-------

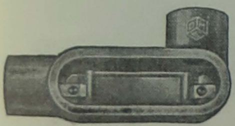
TYPE F

Threaded—Thick Wall

Type F, Form 6 Condulets, ½ to 4-inch sizes, are listed on another page.



Cat. No.	Size In.	Std. Pkg.	Price Each
F17	½	100	$0.50
F27	¾	50	.80
F37	1	20	1.25
F47	1¼	20	2.20
F57	1½	10	3.25
F67	2	5	5.00
F77	2½	5	8.20
F87	3	5	10.20
F97	3½	5	18.10
F107	4	5	25.00
F0117	4½	1	32.00
F0127	5	1	40.00
F0147	6	1	50.00



TYPE L*

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	100	L17	$0.32	L197	$0.40	L147	$0.40
¾	50	L27	.36	L297	.50	L247	.50
1	20	L37	.52	L397	.75	L347	.75
1¼	20	L47	1.05	L497	1.35	L447	1.35
1½	10	L57	1.40	L597	1.90	L547	1.90
2	5	L67	2.40	L697	3.30	L647	3.30

*Type L is a double-faced Condulet which may be used either as an LL or LR Condulet. It has two openings, one of which is furnished with a blank sheet steel cover.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

OBROUND SERIES

Threaded and Threadless Condulets

Schedule CR

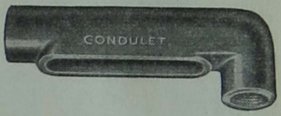
Obround Condulets of the same size take the same covers and wiring devices.

TYPE LB

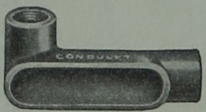
Type LB, Form 6 Condulets, ½ to 2½-inch sizes are listed on another page.

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
⅛	50	LB187	$0.30	-------	-------	-------	-------
¼	50	LB287	.30	-------	-------	-------	-------
⅜	50	LB387	.35	-------	-------	-------	-------
½	100	LB17	.32	LB197	$0.40	LB147	$0.40
¾	50	LB27	.36	LB297	.50	LB247	.50
1	20	LB37	.52	LB397	.75	LB347	.75
1¼	20	LB47	1.05	LB497	1.35	LB447	1.35
1½	10	LB57	1.40	LB597	1.90	LB547	1.90
2	5	LB67	2.40	LB697	3.30	LB647	3.30
2½	5	LB777	5.00	LB797	6.00	-------	-------
3	5	LB87	6.50	LB897	8.50	-------	-------
3½	5	LB97	10.50	LB997	11.50	-------	-------
4	5	LB107	12.00	LB1097	14.00	-------	-------

TYPE LF



		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	100	LF17	$0.32	LF197	$0.40	LF147	$0.40
¾	50	LF27	.36	LF297	.50	LF247	.50
1	20	LF37	.52	LF397	.75	LF347	.75
1¼	20	LF47	1.05	LF497	1.35	LF447	1.35
1½	10	LF57	1.40	LF597	1.90	LF547	1.90
2	5	LF67	2.40	LF697	3.30	LF647	3.30
2½	5	LF777	5.00	-------	-------	-------	-------
3	5	LF87	6.50	-------	-------	-------	-------
3½	5	LF97	10.50	-------	-------	-------	-------
4	5	LF107	12.00	-------	-------	-------	-------



TYPE LL

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
⅛	50	LL187	$0.30	-------	-------	-------	-------
¼	50	LL287	.30	-------	-------	-------	-------
⅜	50	LL387	.35	-------	-------	-------	-------
½	100	LL17	.32	LL197	$0.40	LL147	$0.40
¾	50	LL27	.36	LL297	.50	LL247	.50
1	20	LL37	.52	LL397	.75	LL347	.75
1¼	20	LL47	1.05	LL497	1.35	LL447	1.35
1½	10	LL57	1.40	LL597	1.90	LL547	1.90
2	5	LL67	2.40	LL697	3.30	LL647	3.30
2½	5	LL777	5.00	LL797	6.00	-------	-------
3	5	LL87	6.50	LL897	8.50	-------	-------
3½	5	LL97	10.50	LL997	11.50	-------	-------
4	5	LL107	12.00	LL1097	14.00	-------	-------

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

OBROUND SERIES

Threaded and Threadless Condulets

Schedule CR

Obround Condulets of the same size take the same covers and wiring devices.

TYPE LR

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
⅛	50	LR187	$0.30	....	....	....	....
¼	50	LR287	.30	....	....	....	....
⅜	50	LR387	.35	....	....	....	....
½	100	LR17	.32	LR197	$0.40	LR147	$0.40
¾	50	LR27	.36	LR297	.50	LR247	.50
1	20	LR37	.52	LR397	.75	LR347	.75
1¼	20	LR47	1.05	LR497	1.35	LR447	1.35
1½	10	LR57	1.40	LR597	1.90	LR547	1.90
2	5	LR67	2.40	LR697	3.30	LR647	3.30
2½	5	LR777	5.00	LR797	6.00	....	....
3	5	LR87	6.50	LR897	8.50	....	....
3½	5	LR97	10.50	LR997	11.50	....	....
4	5	LR107	12.00	LR1097	14.00	....	....

TYPE LBB

Threaded—Thick Wall

45°
CONDULET

Cat. No.	Size In.	Std. Pkg.	Price Each
LBB17	½	100	$0.40
LBB27	¾	50	.45
LBB37	1	20	.65
LBB47	1¼	20	1.05
LBB57	1½	10	1.40
LBB67	2	5	2.50
LBB777	2½	5	5.00
LBB87	3	5	6.50
LBB97	3½	5	10.50
LBB107	4	5	12.00

CONDULET
45°

TYPE LFB

Threaded—Thick Wall

Cat. No.	Size In.	Std. Pkg.	Price Each
LFB17	½	100	$0.40
LFB27	¾	50	.45
LFB37	1	20	.65
LFB47	1¼	20	1.05
LFB57	1½	10	1.40
LFB67	2	5	2.50
LFB777	2½	5	5.00
LFB87	3	5	6.50
LFB97	3½	5	10.50
LFB107	4	5	12.00

In addition to the items shown and listed, we can furnish the complete line of Crouse-Hinds fittings and equipment.

Specify Crouse-Hinds Condulets when you desire the best in conduit fittings.

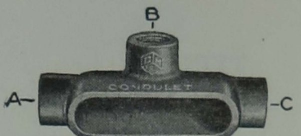
CROUSE-HINDS CONDULETS

OBROUND SERIES

Threaded and Threadless Condulets

Schedule CR

Obround Condulets of the same size take the same covers and wiring devices.



TYPE T

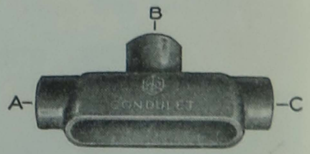
Sizes of hubs are indicated by sequence of letters.

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size Inches	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
⅛–⅛–⅛	50	T187	$0.33	....		....	
¼–¼–¼	50	T287	.33	....		....	
⅜–⅜–⅜	50	T387	.40	....		....	
½–½–½	100	T17	.38	T197	$0.50	T11147	$0.50
½–¾–½	100	T127	.56	....		....	
½–1–½	100	T137	.63	....		....	
¾–½–¾	50	T217	.57	T2197	.84	T21247	.84
¾–¾–¾	50	T27	.46	T297	.70	T22247	.70
¾–1–¾	50	T237	.65	....		....	
¾–1½–¾	50	T257	.90	....		....	
1–½–1	20	T317	.80	T3197	1.19	T31347	1.19
1–¾–1	20	T327	.80	T3297	1.19	T32347	1.19
1–1–1	20	T37	.64	T397	1.00	T33347	1.00
1–2–1	20	T367	1.45	....		....	
1¼–½–1¼	20	T417	1.22	T4197	1.91	T41447	1.91
1¼–¾–1¼	20	T427	1.22	T4297	1.91	T42447	1.91
1¼–1–1¼	20	T437	1.22	T4397	1.91	T43447	1.91
1¼–1¼–1¼	20	T47	1.22	T497	1.80	T44447	1.80
1¼–1½–1¼	20	T457	1.50	....		....	
1¼–2–1¼	20	T467	1.96	....		....	
1½–½–1½	10	T517	1.69	....		....	
1½–¾–1½	10	T527	1.69	....		....	
1½–1–1½	10	T537	1.69	....		....	
1½–1¼–1½	10	T547	1.69	....		....	
1½–1½–1½	10	T57	1.69	T597	2.50	T55547	2.50
1½–2–1½	10	T567	2.52	....		....	
2–½–2	5	T617	2.55	....		....	
2–¾–2	5	T627	2.55	....		....	
2–1–2	5	T637	2.55	....		....	
2–1¼–2	5	T647	2.55	....		....	
2–1½–2	5	T657	2.55	....		....	
2–2–2	5	T67	2.55	T697	3.90	T66647	3.90
2½–1½–2½	5	T5777	5.00	....		....	
2½–2–2½	5	T7677	5.00	....		....	
2½–2½–2½	5	T77	5.00	T797	7.00	....	
3–2–3	5	T867	7.50	....		....	
3–3–3	5	T87	7.50	T897	9.50	....	
3½–2½–3½	5	T977	11.00	....		....	
3½–3½–3½	5	T97	11.00	T997	13.00	....	
4–4–4	5	T107	13.00	T10097	15.80	....	

The size of the cover or wiring device for a type T Condulet is the same as the size of hubs at the ends of the cover opening.

TYPE TB

Sizes of hubs are indicated by sequence of letters.



		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size Inches	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
⅛–⅛–⅛	50	TB187	$0.33	....	....	....	....
¼–¼–¼	50	TB287	.33	....	....	....	....
⅜–⅜–⅜	50	TB387	.40	....	....	....	....
½–½–½	100	TB17	.38	TB197	$0.50	TB147	$0.50
¾–¾–¾	50	TB27	.46	TB297	.70	TB247	.70
¾–1–¾	50	TB237	.65	....	....	....	....
1–½–1	20	TB317	.80	....	....	....	....
1–¾–1	20	TB327	.80	....	....	....	....
1–1–1	20	TB37	.64	TB397	1.00	TB347	1.00
1¼–1¼–1¼	10	TB47	1.22	TB497	1.80	TB447	1.80
1½–1½–1½	10	TB57	1.69	TB597	2.50	TB547	2.50
2–2–2	5	TB67	2.55	TB697	3.90	TB647	3.90
2½–2½–2½	5	TB77	5.00	TB797	7.00	....	....
3–3–3	5	TB87	7.50	TB897	9.50	....	....
3½–3½–3½	5	TB97	11.00	TB997	13.00	....	....
4–4–4	5	TB107	13.00	TB10097	15.80	....	....

Cadmium-galvanized is the standard finish.

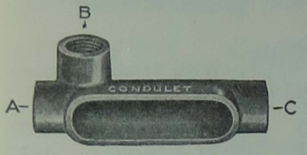
CROUSE-HINDS CONDULETS

OBROUND SERIES

Threaded and Threadless Condulets

Schedule CR

Obround Condulets of the same size take the same covers and wiring devices.



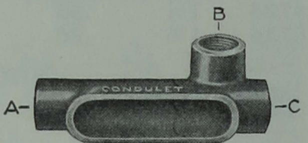
TYPE TL

Sizes of hubs are indicated by sequence of letters.

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size Inches	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½–½–½	100	TL17	$0.48	TL197	$0.63	TL147	$0.63
½–¾–½	100	TL127	.56	....	....	....	....
½–1–½	100	TL137	.63	....	....	....	....
¾–½–¾	50	TL217	.57	....	....	....	....
¾–¾–¾	50	TL27	.57	TL297	.84	TL247	.84
¾–1–¾	50	TL237	.65	....	....	....	....
1–½–1	20	TL317	.80	....	....	....	....
1–¾–1	20	TL327	.80	....	....	....	....
1–1–1	20	TL37	.80	TL397	1.19	TL347	1.19
1¼–1¼–1¼	10	TL47	1.22	....	....	....	....
1½–1½–1½	10	TL57	1.69	....	....	....	....

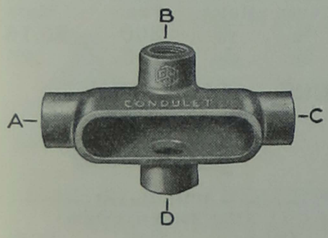
TYPE TR

Sizes of hubs are indicated by sequence of letters.



		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size Inches	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½–½–½	100	TR17	$0.48	TR197	$0.63	TR147	$0.63
½–¾–½	100	TR127	.56	....	....	....	....
½–1–½	100	TR137	.63	....	....	....	....
¾–½–¾	50	TR217	.57	....	....	....	....
¾–¾–¾	50	TR27	.57	TR297	.84	TR247	.84
1–½–1	20	TR317	.80	....	....	....	....
1–¾–1	20	TR327	.80	....	....	....	....
1–1–1	20	TR37	.80	TR397	1.19	TR347	1.19
1¼–1¼–1¼	10	TR47	1.22	....	....	....	....
1½–1½–1½	10	TR57	1.69	....	....	....	....

The size of the cover or wiring device for a type TB, TL, or TR Condulet is the same as the size of hubs at the ends of the cover opening.



TYPE X

Sizes of hubs are indicated by sequence of letters.

The size of the cover or wiring device for a type X Condulet is the same as size of hubs at ends of cover opening.

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½–½–½–½	75	X17	$0.48	X197	$0.60	X111147	$0.60
¾–½–½–½	50	X21117	.77	....	....	....	....
¾–½–¾–½	50	X217	.77	....	....	....	....
¾–¾–¾–¾	50	X27	.62	X297	.90	X222247	.90
1–½–1–½	20	X317	1.05	X3197	1.57	X311347	1.57
1–¾–1–¾	20	X327	1.05	....	....	....	....
1–1–1–1	20	X37	.84	X397	1.35	X333347	1.35
1¼–½–1¼–½	20	X417	1.40	....	....	....	....
1¼–¾–1¼–¾	20	X427	1.40	....	....	....	....
1¼–1¼–1¼–1¼	20	X47	1.40	X497	2.25	X444447	2.25
1½–¾–1½–¾	10	X527	1.78	....	....	....	....
1½–1½–1½–1½	10	X57	1.78	X597	3.10	X555547	3.10
2–2–2–2	5	X67	3.50	X697	4.72	X666647	4.72
2½–2½–2½–2½	5	X77	6.00	....	....	....	....
3–3–3–3	5	X87	10.00	....	....	....	....

Cadmium-galvanized is the standard finish.

CROUSE-HINDS COVERS

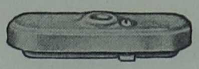
OBROUND COVERS

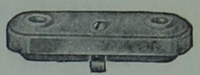
For Obround Series Condulets

Schedule CR

PORCELAIN WITH WIRE HOLES

1 AND 2-WIRE—PORCELAIN



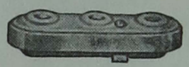


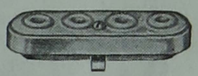
1-Wire Standard					2-Wire		
Cat. No.	Diam. Holes	Price Each	Size Cover	Std. Pkg.	Cat. No.	Diam. Holes	Price Each
171	7/16	$0.10	½	200	172	⅜	$0.10
271	7/16	.15	¾	100	272	15/32	.15
371	7/16	.25	1	50	372	½	.25
471	7/16	.36	1¼	25	472	11/16	.36
571	1⅜	.36	1½	10	572	13/16	.36
671	1¾	.60	2	5	672	1	.60
871	2 5/16	.80	2½, 3	5	872	1 7/16	.80
971	3¼	.90	3½, 4	5	972	1 15/16	.90

1-Wire—Special

Cat. No.	Size Cover	Diam. Hole	Std. Pkg.	Price Each
171S	½	⅝	200	$0.10
271S	¾	25/32	100	.15
371S	1	1	50	.25
471S	1¼	1⅛	25	.36

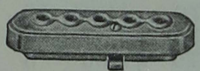
3 AND 4-WIRE—PORCELAIN

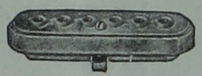




3-Wire					4-Wire		
Cat. No.	Diam. Holes	Price Each	Size Cover	Std. Pkg.	Cat. No.	Diam. Holes	Price Each
173	5/16	$0.10	½	200	174	5/16	$0.10
273	15/32	.15	¾	100	274	5/16	.15
373	½	.25	1	50	374	13/32	.25
473	11/16	.36	1¼	25	474	17/32	.36
573	13/16	.36	1½	10	574	⅝	.36
673	1	.60	2	5	674	1	.60
873	1 7/16	.80	2½, 3	5	874	1 7/16	.80
973	1 15/16	.90	3½, 4	5	974	1 15/16	.90

5 AND 6-WIRE—PORCELAIN

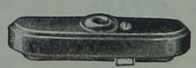


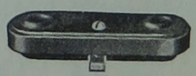


5-Wire					6-Wire		
Cat. No.	Diam. Holes	Price Each	Size Cover	Std. Pkg.	Cat. No.	Diam. Holes	Price Each
275	5/16	$0.15	¾	100	276	5/16	$0.15
375	13/32	.25	1	50	376	⅜	.25
475	17/32	.36	1¼	25	476	½	.36
575	⅝	.36	1½	10	576	17/32	.36
675	13/16	.60	2	5	676	⅝	.60
875	1 1/16	.80	2½, 3	5	876	⅞	.80

COMPOSITION WITH WIRE HOLES

1 AND 2-WIRE—COMPOSITION





1-Wire					2-Wire		
Cat. No.	Diam. Hole	Price Each	Size Cover	Std. Pkg.	Cat. No.	Diam. Holes	Price Each
1771	7/16	$0.20	½	200	1772	⅜	$0.20
2771	7/16	.30	¾	100	2772	15/32	.30
3771	7/16	.50	1	50	3772	½	.50
4771	7/16	1.00	1¼	25	4772	11/16	1.00
5771	1⅜	1.00	1½	10	5772	13/16	1.00
6771	1¾	1.20	2	5	6772	1	1.20
8771	2 5/16	1.60	2½, 3	5	8772	1 7/16	1.60
9771	3¼	2.50	3½, 4	5	9772	1 15/16	2.50
14771	3¼	4.00	4½, 5, 6	1	14772	2¼	4.00

CROUSE-HINDS COVERS

OBROUND COVERS

For Obround Series Condulets

Schedule CR

COMPOSITION WITH WIRE HOLES

3 AND 4-WIRE—COMPOSITION

3-Wire Cat. No.	3-Wire Diam. Holes	3-Wire Price Each	Size Cover	Std. Pkg.	4-Wire Cat. No.	4-Wire Diam. Holes	4-Wire Price Each
1773	⅜	$0.20	½	200	1774	5/16	$0.20
2773	15/32	.30	¾	100	2774	5/16	.30
3773	½	.50	1	50	3774	13/32	.50
4773	11/16	1.00	1¼	25	4774	17/32	1.00
5773	13/16	1.00	1½	10	5774	⅝	1.00
6773	1	1.20	2	5	6774	1	1.20
8773	1 7/16	1.60	2½, 3	5	8774	1 7/16	1.60
9773	1 15/16	2.50	3½, 4	5	9774	1 15/16	2.50
14773	2¼	4.00	4½, 5, 6	1	14774	1⅞	4.00

5 AND 6-WIRE—COMPOSITION

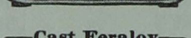
5-Wire Cat. No.	5-Wire Diam. Holes	5-Wire Price Each	Size Cover	Std. Pkg.	6-Wire Cat. No.	6-Wire Diam. Holes	6-Wire Price Each
2775	5/16	$0.30	¾	100	2776	5/16	$0.30
3775	13/32	.50	1	50	3776	⅜	.50
4775	17/32	1.00	1¼	25	4776	½	1.00
5775	⅝	1.00	1½	10	5776	17/32	1.00
6775	13/16	1.20	2	5	6776	⅝	1.20
8775	1 1/16	1.60	2½, 3	5	8776	⅞	1.60
9775	1½	2.50	3½, 4	5	9776	1 3/16	2.50
14775	1 9/16	4.00	4½, 5, 6	1	14776	1 5/16	4.00

BLANK COMPOSITION COVERS

Cat. No.	Size Cover	Std. Pkg.	Price Each	Cat. No.	Size Cover	Std. Pkg.	Price Each
18770	⅛	200	$0.20	4770	1¼	25	$1.00
28770	¼	200	.20	5770	1½	10	1.00
38770	⅜	200	.20	6770	2	5	1.20
1770	½	200	.20	8770	2½, 3	5	1.60
2770	¾	100	.30	9770	3½, 4	5	2.50
3770	1	50	.50	14770	4½, 5, 6	1	4.00

Schedule CR

BLANK METAL COVERS



Sheet Steel Cat. No.	Sheet Steel Price Each	Size In.	Std. Pkg.	Cast Feraloy Cat. No.	Cast Feraloy Price Each
1870	$0.06	⅛	100	--------	--------
2870	.06	¼	100	--------	--------
3870	.06	⅜	100	--------	--------
170	.06	½	200	170f	$0.16
270	.08	¾	100	270f	.22
370	.17	1	50	370f	.35
470	.24	1¼	25	470f	.50
570	.24	1½	10	570f	.50
670	.42	2	5	670f	.90
--------	--------	2½, 3	5	870†	.56
--------	--------	3½, 4	5	970†	.60

†These covers are made of cast aluminum.

If specified on order, blank composition cover will be furnished with special drilling at an advance in list price as follows: Up to ½-inch diameter, **$0.05** list per hole; over ½-inch but less than 1 inch, **$0.15** list per hole; 1 inch and over, **$0.20** list per hole.

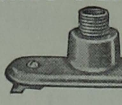
CROUSE-HINDS WIRING DEVICES

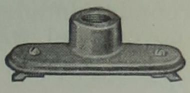
CONDULET WIRING DEVICES

For Obround Series Condulets

Schedule CR

CAST FERALOY COVERS WITH NIPPLE





With Male Nipple Cat. No.	With Male Nipple Size Cover	With Male Nipple Price Each	Std. Pkg.	With Female Nipple Cat. No.	With Female Nipple Size Cover	With Female Nipple Price Each
⅛-Inch Nipple						
1721	½	$0.20	200	1731	½	$0.20
2721	¾	.25	100	2731	¾	.25
3721	1	.35	50	3731	1	.35
¼-Inch Nipple						
1722	½	.23	200	1732	½	.23
2722	¾	.28	100	2732	¾	.28
3722	1	.38	50	3732	1	.38
⅜-Inch Nipple						
1723	½	.25	200	1733	½	.25
2723	¾	.30	100	2733	¾	.30
3723	1	.40	50	3733	1	.40
½-Inch Nipple						
1724	½	.30	200	1734	½	.30
2724	¾	.35	100	2734	¾	.35
3724	1	.45	50	3734	1	.45
4724	1¼	.56	25	4734	1¼	.56
5724	1½	.56	10	5734	1½	.56

SHEET STEEL COVERS

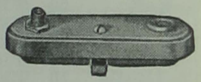
With Cord Clamp

Provided with a cord clamp and bushed hole which safeguards the drop cord. Takes cord ¼ to ⅜ inch diameter.

Cat. No.	Size	Std. Pkg.	Price Each
1972	½	200	$0.30
2972	¾	100	.35

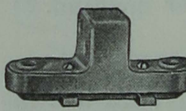
PORCELAIN COVERS

For Drop Cord and Fixture Pull Switch



With one-wire hole and ⅛-inch male nipple.

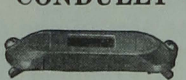
Cat. No.	Size Cover	Diam. Holes	Std. Pkg.	Price Each
1782	½	13/32	200	$0.35
2782	¾	13/32	100	.40

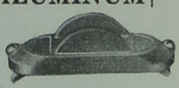


For Weatherproof Socket—2-Wire

Cat. No.	Size Cover	Diam. Holes	Std. Pkg.	Price Each
1781	½	5/16	200	$0.16
2781	¾	5/16	100	.25

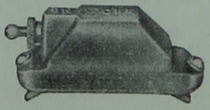
CONDULET COVERS—ALUMINUM†





Without Guard Cat. No.	Without Guard Size In.	Without Guard Price Each	With Guard (For Switches Only) Cat. No.	With Guard (For Switches Only) Size In.	With Guard (For Switches Only) Price Each
1755	½	$0.20	1785	½	$0.20
2755	¾	.30	--------	----	--------

SWITCH COVERS—VAPORTIGHT‡



Cat. No.	Size In.	Std. Pkg.	Price Each
1766	½	50	$1.40
2766	¾	25	1.50
3766	1	10	1.60

†Take P&S-Despard, Bryant IL, Hubbell, Arrow-H&H and G.E. TS wiring devices. A mounting bridge is required to install the wiring device and is furnished with each cover listed above.

‡Furnished with gasket and mounting strap for switches. Take P&S-Despard, Bryant IL, Hubbell, Arrow-H&H TS and G.E. TS tumbler switches.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS WIRING DEVICES

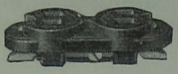
CONDULET WIRING DEVICES

For Obround Series Condulets

Schedule CR

COMPOSITION 2-POLE ATTACHMENT PLUG RECEPTACLES

Double T Slots



Duplex Parallel Slots

Duplex Double T Slots

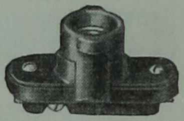
Cat. No.	Rating	Size Inches	Std. Pkg.	Price Each
	Double T Slots			
1715	15-Amp., 125-Volt	½	100	**$0.40**
2715	or	¾	100	**.45**
3715	10-Amp., 250-Volt	1	50	**.70**
	Duplex Parallel Slots			
1748	15-Amp., 125-Volt	½	100	**.40**
2748	or	¾	100	**.50**
3748	10-Amp., 250-Volt	1	50	**.70**
	Duplex Double T Slots			
1725	15-Amp., 125-Volt	½	100	**.60**
2725	or	¾	50	**.70**
3725	10-Amp., 250-Volt	1	50	**.90**

COMPOSITION 2-POLE POLARITY PLUG RECEPTACLES

Cat. No.	Rating	Size Inches	Std. Pkg.	Price Each
1728	15-Amp., 125-Volt	½	100	**$0.40**
2728†	or	¾	100	**.45**
3728	10-Amp., 250-Volt	1	50	**.70**
1738	20-Amp., 250-Volt	½	100	**.55**
2738		¾	100	**.60**
3738		1	50	**.85**

COMPOSITION LAMP RECEPTACLES

660-Watt, 600-Volt

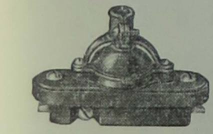


When specified, lamp receptacle with lamp grip will be furnished at an advance of **$0.10** in the list.

With Shade Holder Groove				Without Shade Holder Groove			
Cat. No.	Size In.	Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Price Each
1726	½	100	**$0.35**	**1727**	½	100	**$0.35**
2726	¾	100	**.40**	**2727**	¾	100	**.40**
3726	1	50	**.60**	**3727**	1	50	**.60**

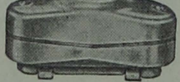
COMPOSITION CORD ROSETTES

660-Watt, 250-Volt



Cat. No.	Size Inches	Std. Pkg.	Price Each
1720	½	100	**$0.60**
2720	¾	100	**.65**
3720	1	50	**.90**

PORCELAIN ATTACHMENT PLUG RECEPTACLES



3-Wire, 3-Pole

Cat. No.	Rating	Size Inches	Std. Pkg.	Price Each
1709	15-A., 125-V. or 10-Amp., 250-Volt	½	100	**$0.60**
2709		¾	100	**.65**
1719	20-Amp., 250-Volt	½	100	**.75**
2719		¾	100	**.80**
	2-Wire, 3-Pole—Extra Pole Grounded			
1729	15-A., 125-V. or 10-Amp., 250-Volt	½	100	**.85**
2729		¾	100	**.90**
1739	20-Amp., 250-Volt	½	100	**.90**
2739		¾	100	**.95**

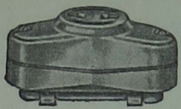
†Take Hubbell No. 5567 polarized plug. For use with parallel blade polarity plugs, use Nos. 1705, 1715, 1725, 2705, 2715, 2725, 3705, 3715, and 3725 receptacles. Prices do not include attachment plugs.

CROUSE-HINDS WIRING DEVICES

For Obround Series Condulets

Schedule CR

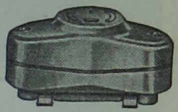
CONDULET WIRING DEVICES



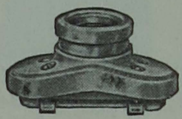
PORCELAIN 2-POLE ATTACHMENT PLUG RECEPTACLES

Cat. No.	Rating	Size Inches	Std. Pkg.	Price Each
	Double T Slots			
1705	15-Amp., 125-Volt	½	100	**$0.40**
2705	or	¾	100	**.45**
3705	10-Amp., 250-Volt	1	50	**.50**

PORCELAIN 2-POLE POLARITY PLUG RECEPTACLES



Cat. No.	Rating	Size Inches	Std. Pkg.	Price Each
1708	15-Amp., 125-Volt	½	100	**$0.40**
2708†	or	¾	100	**.45**
3708	10-Amp., 250-Volt	1	50	**.50**
1718	20-Amp., 250-Volt	½	100	**.55**
2718		¾	100	**.60**
3718		1	50	**.65**



PORCELAIN LAMP RECEPTACLES

660-Watt, 600-Volt

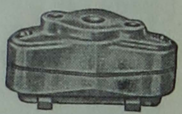
When specified, lamp receptacle with lamp grip will be furnished at an advance of **$0.10** in the list price.

Cat. No.	Size Inches	Std. Pkg.	Price Each
	With Shade Holder Groove		
1706	½	100	**$0.30**
2706	¾	100	**.35**
3706	1	50	**.40**
	Without Shade Holder Groove		
1707	½	100	**.25**
2707	¾	100	**.30**

PORCELAIN CORD ROSETTES

660-Watt, 250-Volt

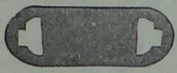
Cat. No.	Size Inches	Std. Pkg.	Price Each
1700	½	100	**$0.30**
2700	¾	100	**.35**
3799	1	50	**.40**



CROUSE-HINDS GASKETS

FOR OBROUND SERIES CONDULETS

Schedule CR



For use between Condulets, and metal covers or Obround adapters.

Cat. No. Rubber	Cat. No. Cork	Cat. No. Vellumoid	Size In.	Std. Pkg.	Price Each
Gask 571	Gask 671	Gask 771	½	200	**$ .10**
Gask 572	Gask 672	Gask 772	¾	100	**.10**
Gask 573	Gask 673	Gask 773	1	50	**.15**
Gask 574	Gask 674	Gask 774	1¼	25	**.20**
Gask 575	Gask 675	Gask 775	1½	25	**.20**
Gask 576	Gask 676	Gask 776	2	25	**.25**
Gask 578	Gask 678	Gask 778	2½, 3	25	**.40**
Gask 579	Gask 679	Gask 779	3½, 4	25	**.50**

†Take Hubbell No. 5567 polarized plug. For use with parallel blade polarity plugs, use Nos. 1705, 1715, 1725, 2705, 2715, 2725, 3705, 3715, and 3725 receptacles. Prices do not include attachment plugs.

CROUSE-HINDS CONDULETS

FORM 8 SERIES CONDULETS

Threaded for Thick Wall Conduit

Schedule CR

Form 8 series Condulets take Form 8 series covers. Use Form 7 series Condulets for ½-, ¾-, and 1-inch sizes.

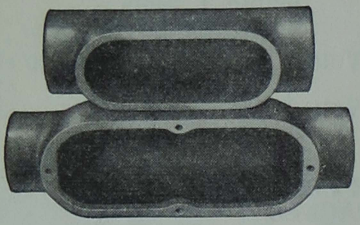
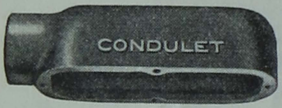


Illustration showing relative sizes of 2-inch Type C, Form 7 and Form 8 Condulets.

TYPE C

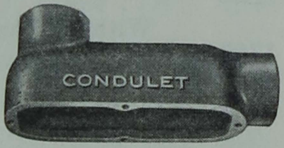
Cat. No.	Size In.	Std. Pkg.	Price Each
C48	1¼	20	**$1.05**
C58	1½	10	**1.40**
C68	2	5	**2.40**
C78	2½	5	**5.00**
C88	3	5	**6.50**
C98	3½	5	**10.50**
C108	4	5	**12.00**

TYPE E



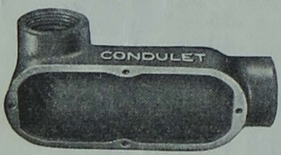
Cat. No.	Size In.	Std. Pkg.	Price Each
E48	1¼	20	**$0.80**
E58	1½	10	**1.04**
E68	2	5	**2.14**
E78	2½	5	**4.20**
E88	3	5	**5.00**
E98	3½	5	**7.00**
E108	4	5	**9.00**

TYPE LB



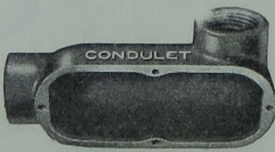
Cat. No.	Size In.	Std. Pkg.	Price Each
LB48	1¼	20	**$1.05**
LB58	1½	10	**1.40**
LB68	2	5	**2.40**
LB78	2½	5	**5.00**
LB888	3	5	**6.50**
LB98	3½	5	**10.50**
LB108	4	5	**12.00**

TYPE LL



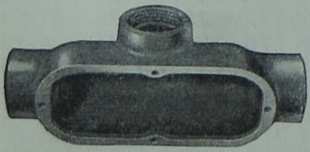
Cat. No.	Size In.	Std. Pkg.	Price Each
LL48	1¼	20	**$1.05**
LL58	1½	10	**1.40**
LL68	2	5	**2.40**
LL78	2½	5	**5.00**
LL888	3	5	**6.50**
LL98	3½	5	**10.50**
LL108	4	5	**12.00**

TYPE LR



Cat. No.	Size In.	Std. Pkg.	Price Each
LR48	1¼	20	**$1.05**
LR58	1½	10	**1.40**
LR68	2	5	**2.40**
LR78	2½	5	**5.00**
LR888	3	5	**6.50**
LR98	3½	5	**10.50**
LR108	4	5	**12.00**

TYPE T



Cat. No.	Size In.	Std. Pkg.	Price Each
T48	1¼	20	**$1.22**
T58	1½	10	**1.69**
T68	2	5	**2.55**
T78	2½	5	**5.00**
T88	3	5	**7.50**
T98	3½	5	**11.00**
T108	4	5	**13.00**

CROUSE-HINDS CONDULETS

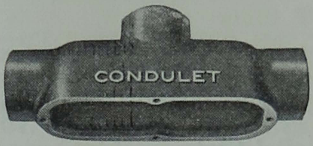
FORM 8 SERIES CONDULETS

Threaded for Thick Wall Conduit

Schedule CR

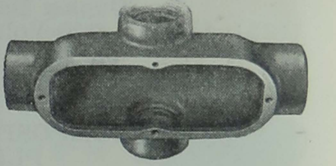
Form 8 series Condulets take Form 8 series covers. Use Form 7 series Condulets for ½-, ¾-, and 1-inch sizes.

TYPE TB



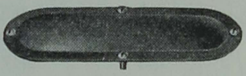
Cat. No.	Size In.	Std. Pkg.	Price Each
TB48	1¼	10	**$1.22**
TB58	1½	10	**1.69**
TB68	2	5	**2.55**
TB78	2½	5	**5.00**
TB88	3	5	**7.50**
TB98	3½	5	**11.00**
TB108	4	5	**13.00**

TYPE X



Cat. No.	Size In.	Std. Pkg.	Price Each
X48	1¼	20	**$1.40**
X58	1½	10	**1.78**
X68	2	5	**3.50**
X78	2½	5	**6.00**
X88	3	5	**10.00**
X98	3½	5	**13.00**
X108	4	5	**16.00**

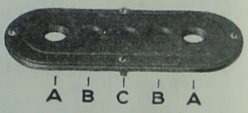
†BLANK COVERS FOR FORM 8 SERIES



Cat. No.	Size In.	Std. Pkg.	Price Each
	Sheet Steel		
580	1¼ or 1½	10	**$0.24**
680	2	5	**.42**
880	2½ or 3	5	**.56**
980	3½ or 4	5	**.60**
	Cast Feraloy		
580F	1¼ or 1½	10	**.50**
680F	2	5	**.70**
880F	2½ or 3	5	**.75**
980F	3½ or 4	5	**.80**
	Bakelite†		
5870	1¼ or 1½	10	**.36**
6870	2	5	**.60**
8870	2½ or 3	5	**.80**
9870	3½ or 4	5	**.90**

2, 3, 4, OR 5-WIRE COVERS BAKELITE

For Form 8 Series



Cat. No.	Size Inches	Diameter Holes A	Diameter Knockouts B	Diameter Knockouts C	Std. Pkg.	Price Each
5875	1¼ or 1½	13/16	⅝	13/16	10	**$0.36**
6875	2	1	1	1	5	**.60**
8875	2½ or 3	1 7/16	1 3/16	1 7/16	5	**.80**
9875	3½ or 4	1 13/16	1 9/16	1 13/16	5	**.90**

GASKETS FOR FORM 8

For use between Condulets and metal covers.

Size In.	Std. Pkg.	Catalog Numbers Rubber Gasket	Catalog Numbers Cork Gasket	Catalog Numbers Vellumoid Gasket	Price Each
1¼ or 1½	25	**805R**	**805C**	**805V**	**$0.20**
2	25	**806R**	**806C**	**806V**	**.25**
2½ or 3	25	**808R**	**808C**	**808V**	**.40**
3½ or 4	25	**809R**	**809C**	**809V**	**.50**

†If specified on the order, blank Bakelite cover will be furnished with special drilling at an advance in list price as follows: Up to ½ inch diameter, **$0.05** list per hole; over ½ inch, **$0.15** list per hole; 1 inch and over, **$0.20** list per hole.

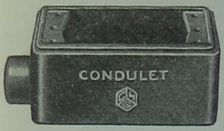
CROUSE-HINDS CONDULETS

FS SERIES — SHALLOW TYPE

Threaded and Threadless Condulets

Schedule CR

Take covers and shallow flush rectangular wiring devices, or receptacles with housings.

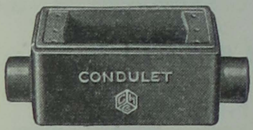


TYPE FS

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	50	FS1	$0.52	FS191	$0.56	FS141	$0.56
¾	50	FS2	.60	FS291	.68	FS241	.68
1	25	FS3	.68	FS391	.80	FS341	.80

TYPE FSA

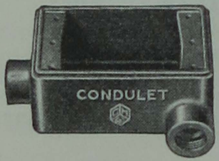
½	50	FSA1	$0.65	FSA191	$0.70	FSA141	$0.70
¾	50	FSA2	.75	FSA291	.85	FSA241	.85
1	25	FSA3	.85	FSA391	1.00	FSA341	1.00



TYPE FSC

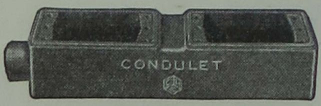
½	50	FSC1	$0.60	FSC191	$0.68	FSC141	$0.68
¾	50	FSC2	.72	FSC291	.88	FSC241	.88
1	25	FSC3	.88	FSC391	1.13	FSC341	1.13

TYPE FSL



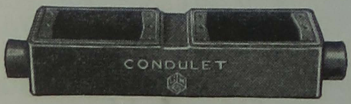
½	50	FSL1	$0.75	FSL191	$0.85	FSL141	$0.85
¾	50	FSL2	.90	FSL291	1.10	FSL241	1.10
1	25	FSL3	1.10	FSL391	1.40	FSL341	1.40

TYPE FS, TWO-GANG TANDEM



½	25	FS17	$1.65	FS197	$1.70	FS147	$1.70
¾	25	FS27	1.75	FS297	1.85	FS247	1.85
1	10	FS37	1.85	FS397	2.00	FS347	2.00

TYPE FSC, TWO-GANG TANDEM



½	25	FSC17	$1.75	FSC197	$1.85	FSC147	$1.85
¾	25	FSC27	1.85	FSC297	2.05	FSC247	2.05
1	10	FSC37	1.95	FSC397	2.25	FSC347	2.25

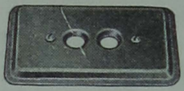
Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULET COVERS

Schedule CR

For FS and FD Series; and FS Series, Two-Gang Tandem Condulets.

For Double Push Button, Double Push Button Momentary Contact, and Double Push Lock Switches



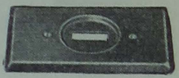
Sheet Steel

Cat. No.	Style	Std. Pkg.	Price Each
DS8	Surface	50	$0.15
DSS8	Flush	50	.15

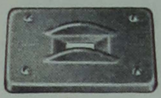
For G-E, Arrow-H&H, Bryant, and Hubbell Tumbler Flush Switches with Square Handles

Sheet Steel

Cat. No.	Style	Std. Pkg.	Price Each
DS32	Surface	50	$0.15
DSS32	Flush	50	.15



For G-E, Arrow-H&H, Bryant, and Hubbell Tumbler Flush Switches with Square Handles



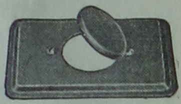
Cast Feraloy—Guarded

Cat. No.	Style	Std. Pkg.	Price Each
DS32g	Surface	50	$0.35
DS32g	Flush	50	.35

For Round Flush Receptacles

Sheet Steel—Spring Hinge Lid

Cat. No.	Style	Diam. Open'g	Std. Pkg.	Price Each
DS10	Surface	1⅝	50	$0.60
DSS10	Flush	1⅝	50	.60



For Round Flush Receptacles

Cast Feraloy—With Spring Door

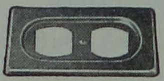
Cat. No.	Style	Diam. Open'g	Std. Pkg.	Price Each
DS10g	Surface	$1\frac{7}{16}$	50	$1.25
DS10g	Flush	$1\frac{7}{16}$	50	1.25

For Round Flush Receptacles

Sheet Steel

Cat. No.	Style	Diam. Open'g	Std. Pkg.	Price Each
DS21	Surface	$1\frac{13}{32}$	50	$0.15
DSS21	Flush	$1\frac{13}{32}$	50	.15

For "Standard" Duplex Flush Receptacles



Sheet Steel

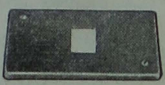
Cat. No.	Style	Std. Pkg.	Price Each
DS23	Surface	50	$0.15
DSS23	Flush	50	.15

For P&S-Despard, Bryant IL, Hubbell, Arrow-H&H TS, and G.E. TS Wiring Devices With One Opening

(Furnished with Mounting Bridge)

Sheet Steel

Cat. No.	Style	Std. Pkg.	Price Each
DS71	Surface	50	$0.25
DSS71	Flush	50	.25



Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULET COVERS

For FS and FD Series; FS Series, Two-Gang Tandem Condulets.

Schedule CR

For P&S-Despard, Bryant IL, Hubbell, Arrow-H&H TS, and G.E. TS Wiring Devices With Two Openings

(Furnished with Mounting Bridge)

Sheet Steel

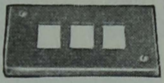
Cat. No.	Style	Std. Pkg.	Price Each
DS72	Surface	50	$0.25
DSS72	Flush	50	.25

For P&S-Despard, Bryant IL, Hubbell, Arrow-H&H TS, and G.E. TS Wiring Devices With Three Openings

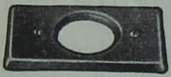
(Furnished with Mounting Bridge)

Sheet Steel

Cat. No.	Style	Std. Pkg.	Price Each
DS73	Surface	50	$0.25
DSS73	Flush	50	.25



For G-E, 30-Ampere Flush Plug Receptacle



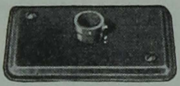
Sheet Steel

Cat. No.	Style	Diam. Open'g	Std. Pkg.	Price Each
DS35	Surface	1⅝	50	$0.15
DSS35	Flush	1⅝	50	.15

With Female Brass Nipple

Sheet Steel

Cat. No.	Style	Size Nipple	Std. Pkg.	Price Each
DS18	Surface	⅜	50	$0.40
DS116	Surface	½	50	.45



Blank Covers—Sheet Steel

Cat. No.	Style	Std. Pkg.	Price Each
DS100	Surface	50	$0.10
DSS100	Flush	50	.10

Blank Covers—Cast Feraloy—With Gasket

Cat. No.	Style	Std. Pkg.	Price Each
DS100g	Surface	50	$0.25
DS100g	Flush	50	.25

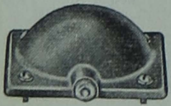
COVERS, VAPORTIGHT

With Switch Operating Mechanism

Surface or Flush—Furnished with Gasket

For External Operation of Double Push Button Switches‡

Furnished with Key†



Cat. No.	Material	Std. Pkg.	Price Each
DS106	Cast Feraloy	25	$1.75
DS106E	Cast Bronze	25	3.00

†Key for Vaportight Cover DS106, Cat. No. Key 1, list price, **$0.20.**

‡Where the temperature exceeds 125 degrees Fahrenheit, switches furnished with heat-resisting buttons should be used.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULET COVERS

For FS and FD Series; FS Series, Two-Gang Tandem Condulets.

Schedule CR

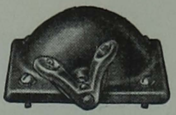
COVERS, VAPORTIGHT

With Switch Operating Mechanism

Surface or Flush—Furnished with Gasket

For External Operation of Double Push Button Switches‡

Furnished with Handle

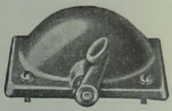


Cat. No.	Material	Std. Pkg.	Price Each
DS108	Cast Feraloy	25	$1.75
DS108E	Cast Bronze	25	3.00

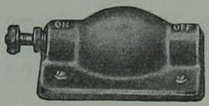
For Momentary Contact Switches‡

Furnished with Handle

Cat. No.	Material	Std. Pkg.	Price Each
DS107	Cast Feraloy	25	$1.75
DS107E	Cast Bronze	25	3.00



For External Operation of Tumbler Switches‡

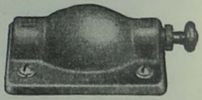


For Standard Operation "On" or "Off"

Cat. No.	Material	Std. Pkg.	Price Each
DS128	Cast Feraloy	25	$1.75
DS128E	Cast Bronze	25	3.00

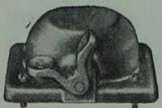
For External Operation of Tumbler Switches‡

Cat. No.	Normally	Std. Pkg.	Price Each
Cast Feraloy			
DS126	"On"	25	$1.75
DS127	"Off"	25	1.75
Cast Bronze			
DS126E	"On"	25	3.00
DS127E	"Off"	25	3.00



COVERS, VAPORTIGHT

For Standard Tumbler Switches‡

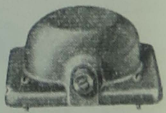


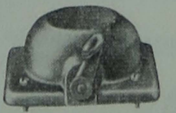
For Standard Operation† "On" or "Off"

Cat. No.	Material	Std. Pkg.	Price Each
DS181	Cast Feraloy	25	$1.75
DS181E	Cast Bronze	25	3.00

For Standard Operation with Key

Cat. No.	Material	Std. Pkg.	Price Each
DS182	Cast Feraloy	25	$1.75
DS182E	Cast Bronze	25	3.00





For Momentary Contact Switches

Cat. No.	Material	Std. Pkg.	Price Each
DS183	Cast Feraloy	25	$1.75
DS183E	Cast Bronze	25	3.00

†This cover can be furnished with left-hand operation, if specified on order.

‡Where the temperature exceeds 125 degrees Fahrenheit, switches furnished with heat-resisting handles should be used.

Cadmium-galvanized is the standard finish.

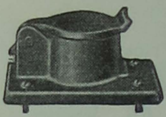
CROUSE-HINDS RECEPTACLES WITH HOUSINGS—TYPE DS

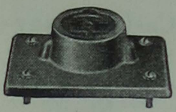
Schedule CR

For FS and FD Series, and FS Series, Two-Gang Tandem Condulets. Housings are furnished with receptacle for standard attachment plug caps.

RECEPTACLES WITH HOUSINGS

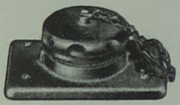
Surface or Flush Types

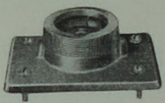




15-Amp., 125-Volt or 10-Amp., 250-Volt

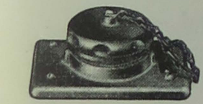
With Spring Door				Without Spring Door	
Cat. No.	Price Each	Material	For	Cat. No.	Price Each
DS83	**$3.20**	Feraloy	2-Wire, 2-Pole	**DS85**	**$1.60**
DS83E	**7.10**	Bronze		**DS85E**	**3.10**
DS84	**3.90**	Feraloy	2-Wire, 3-Pole*	**DS86**	**2.30**
DS84E	**7.80**	Bronze		**DS86E**	**3.90**
DS91	**3.90**	Feraloy	3-Wire, 3-Pole	**DS92**	**2.30**
DS91E	**7.80**	Bronze		**DS92E**	**3.90**





15-Amp., 125-Volt or 10-Amp., 250-Volt

With Threaded Cap				Without Threaded Cap	
Cat. No.	Price Each	Material	For	Cat. No.	Price Each
DS81	**$2.50**	Feraloy	2-Wire, 2-Pole	**DS87**	**$1.75**
DS81E	**5.35**	Bronze		**DS87E**	**4.60**
DS82	**3.45**	Feraloy	2-Wire, 3-Pole*	**DS88**	**2.70**
DS82E	**6.70**	Bronze		**DS88E**	**5.95**
DS90	**3.45**	Feraloy	3-Wire, 3-Pole	**DS93**	**2.70**
DS90E	**6.70**	Bronze		**DS93E**	**5.95**



With Threaded Cap

20-Amp., 250-Volt

Cat. No.	Surface or Flush	With Hubbell Receptacle	Std. Pkg.	Price Each
DS135	2-Wire, 3-Pole*	6810G	25	**$4.00**
DS135E	2-Wire, 3-Pole*	6810G	25	**7.25**
DS139	3-Wire, 3-Pole	6810	25	**4.00**
DS139E	3-Wire, 3-Pole	6810	25	**7.25**
DS138	2-Wire, 3-Pole*‡	7310G	25	**4.00**
DS138E	2-Wire, 3-Pole*‡	7310G	25	**7.25**
DS137	3-Wire, 3-Pole‡	7310	25	**4.00**
DS137E	3-Wire, 3-Pole‡	7310	25	**7.25**

*Third pole grounded. ‡Twist lock.

Nos. DS137, DS137E, DS138 and DS138E are for use with Hubbell No. 9965 rubber body plug only.

Threaded housings listed above are furnished with gaskets.

Receptacles for housings listed above are furnished with fastening strap and screws.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS RECEPTACLES WITH HOUSINGS—TYPE BRD

Schedule CR

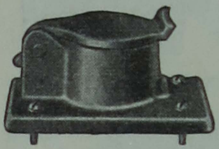
For FS, FD and FS Series, Two-Gang Tandem Condulets.

Take type BP plugs. 2-pole housings are furnished with 30-ampere, 250-volt receptacle BR302; 3-pole housings are furnished with 30-ampere, 250-volt receptacle BR303; 4-pole housings are furnished with 30-ampere, 250-volt receptacle BR304.

The type BRD receptacles with housings are made in four styles: with spring door, without spring door, with threaded brass cap, and without threaded brass cap. They can be used on Condulets mounted either on the surface of or flush with the wall.

TYPE BRD

30-Ampere, 250-Volt A.C.*

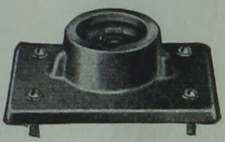


With Spring Door

Cat. No.	Material	Std. Pkg.	Price Each
	2-Pole		
BRD6302	Feraloy	10	**$4.20**
BRD6302E	Bronze	10	**8.10**
	3-Pole		
BRD6303	Feraloy	10	**4.90**
BRD6303E	Bronze	10	**9.10**
	4-Pole		
BRD6304	Feraloy	10	**5.60**
BRD6304E	Bronze	10	**10.10**

Without Spring Door

Cat. No.	Material	Std. Pkg.	Price Each
	2-Pole		
BRD302	Feraloy	10	**$2.60**
BRD302E	Bronze	10	**4.10**
	3-Pole		
BRD303	Feraloy	10	**3.10**
BRD303E	Bronze	10	**4.60**
	4-Pole		
BRD304	Feraloy	10	**3.60**
BRD304E	Bronze	10	**5.10**



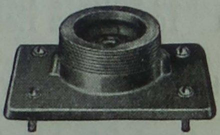
With Threaded Cap

(Furnished with Gaskets)

Cat. No.	Material	Std. Pkg.	Price Each
	2-Pole		
BRD8302	Feraloy	10	**$3.75**
BRD8302E	Bronze	10	**5.55**
	3-Pole		
BRD8303	Feraloy	10	**4.70**
BRD8303E	Bronze	10	**7.20**
	4-Pole		
BRD8304	Feraloy	10	**5.65**
BRD8304E	Bronze	10	**8.80**

Without Threaded Cap

Cat. No.	Material	Std. Pkg.	Price Each
	2-Pole		
BRD7302	Feraloy	10	**$2.80**
BRD7302E	Bronze	10	**4.60**
	3-Pole		
BRD7303	Feraloy	10	**3.35**
BRD7303E	Bronze	10	**5.25**
	4-Pole		
BRD7304	Feraloy	10	**3.90**
BRD7304E	Bronze	10	**5.80**



*Can be used on 25-ampere, 125-volt D.C. circuits; or on 30-ampere, 250-volt D.C. circuits if circuit is broken before plug is withdrawn.

Cadmium-galvanized is the standard finish.

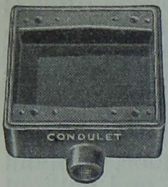
CROUSE-HINDS CONDULETS

FS SERIES—TWO-GANG—SHALLOW TYPE

Threaded and Threadless Condulets

Schedule CR

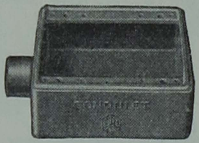
Take covers and shallow flush rectangular wiring devices.



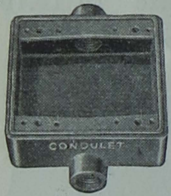
TYPE FS, TWO-GANG

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	25	FS12	$1.20	FS192	$1.25	FS142	$1.25
¾	25	FS22	1.30	FS292	1.40	FS242	1.40
1	10	FS32	1.40	FS392	1.55	FS342	1.55

TYPE FSE, TWO-GANG



		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	25	FSE12	$1.30	FSE192	$1.40	FSE142	$1.40

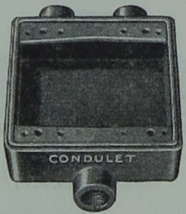


TYPE FSC, TWO-GANG

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	25	FSC12	$1.30	FSC192	$1.40	FSC142	$1.40
¾	25	FSC222	1.40	FSC292	1.60	FSC242	1.60
1	10	FSC32	1.55	FSC392	1.85	FSC342	1.85

TYPE FSD, TWO-GANG

The hubs at the top in the illustration are ½-inch.



		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	25	FSD12	$1.45	FSD192	$1.60	FSD142	$1.60
¾	25	FSD212	1.55	FSD2192	1.75	FSD2142	1.75
1	10	FSD312	1.65	FSD3192	1.90	FSD3142	1.90

For wiring devices exceeding 1⅝ inches in depth under the fastening ears, use Condulets of the FD series, two-gang.

Condulets listed above can be furnished with flat face (4½x4⅝x2 1/16 inches) to take standard wall plates at the same list prices; add suffix "S24" to catalog number.

Overall dimensions of body, exclusive of hubs: Length, 4 9/32 inches; width, 4⅝ inches; depth, 1⅞ inches.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULET COVERS

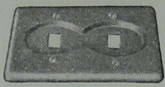
TWO-GANG COVERS

For FS and FD Series Condulets, Two-Gang.

Schedule CR

For G-E, Arrow-H&H, Bryant, and Hubbell Tumbler Flush Switches with Square Handles

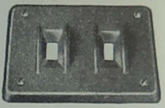
Sheet Steel



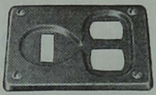
Cat. No.	Style	Std. Pkg.	Price Each
S322	Surface	25	$0.30
SS322	Flush	25	.30

Cast Feraloy—Guarded

Cat. No.	Style	Std. Pkg.	Price Each
S322g	Surface	25	$0.65
S322g	Flush	25	.65



For G-E, Arrow-H&H, Bryant, and Hubbell Tumbler Flush Switches with Square Handles And for "Standard" Duplex Flush Receptacles—Sheet Steel

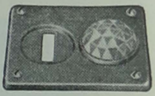


Cat. No.	Style	Std. Pkg.	Price Each
S32232	Surface	25	$0.50
SS32232	Flush	25	.50

For G-E, Arrow-H&H, Bryant, and Hubbell Tumbler Flush Switches with Square Handles; and for Pilot Lamp Flush Receptacles (Furnished with Ruby Jewel)

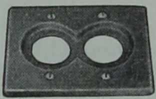
Sheet Steel

Cat. No.	Style	Std. Pkg.	Price Each
S32242	Surface	25	$1.20
SS32242	Flush	25	1.20



For Round Flush Receptacles

Sheet Steel

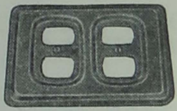


Cat. No.	Style	Std. Pkg.	Price Each
S212	Surface	25	$0.30
SS212	Flush	25	.30

For "Standard" Duplex Flush Receptacles

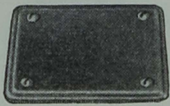
Sheet Steel

Cat. No.	Style	Std. Pkg.	Price Each
S232	Surface	25	$0.30
SS232	Flush	25	.30



Blank Metal Covers

Sheet Steel



Cat. No.	Style	Std. Pkg.	Price Each
S1002	Surface	25	$0.20
SS1002	Flush	25	.20

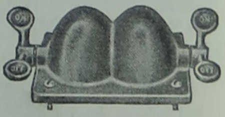
TWO-GANG COVERS, VAPORTIGHT

With Switch Operating Mechanism

Surface or Flush—Furnished with Gasket

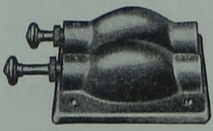
For External Operation of Double Push Button Switches‡

Furnished with Handle



Cat. No.	Material	Std. Pkg.	Price Each
DS1082	Feraloy	25	$3.00
DS1082E	Bronze	25	5.10

For External Operation of Tumbler Switches



For Standard Operation "On" or "Off."

Cat. No.	Material	Std. Pkg.	Price Each
DS1282	Feraloy	25	$3.00
DS1282E	Bronze	25	5.10

‡Where the temperature exceeds 125 degrees Fahrenheit, switches furnished with heat-resisting buttons should be used.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

G-H SERIES WITH ADJUSTABLE BAR

Threaded and Threadless Condulets

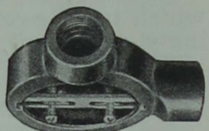
Schedule CR

TYPE G

Take round base wiring devices. Furnished with adjustable bar.

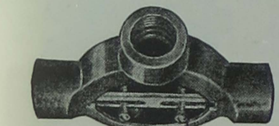
		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
			Form 5				
½	100	G151	$0.55	G159	$0.65	G154	$0.65
¾	50	G252	.65	G259	.85	G254	.85
1	25	G353	.90	--------	-------	---------	-------
			Form 10				
½	50	G1101	.55	G119	.65	G114	.65
¾	25	G2102	.65	G219	.85	G214	.85
1	25	G3103	.90	---------	-------	---------	-------

TYPE GL



Take round base wiring devices. Furnished with adjustable bar.

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
			Form 5				
½	100	GL151	$0.60	GL159	$0.70	GL154	$0.70
¾	50	GL252	.70	---------	-------	---------	-------
1	25	GL353	.95	---------	-------	---------	-------
			Form 10				
½	50	GL1101	.60	GL119	.70	GL114	.70
¾	25	GL2102	.70	---------	-------	---------	-------
1	25	GL3103	.95	---------	-------	---------	-------

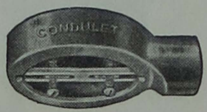


TYPE GT

Take round base wiring devices. Furnished with adjustable bar.

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
			Form 5				
½	100	GT151	$0.75	GT159	$0.90	GT154	$0.90
¾	50	GT252	.85	GT259	1.15	GT254	1.15
1	25	GT353	1.10	---------	-------	---------	-------
			Form 10				
½	50	GT1101	.75	---------	-------	---------	-------
¾	25	GT2102	.85	---------	-------	---------	-------
1	25	GT3103	1.10	---------	-------	---------	-------

TYPE H



Take round base wiring devices. Furnished with adjustable bar.

		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
			Form 5				
½	100	H15	$0.45	H159	$0.50	H154	$0.50
¾	50	H25	.55	H259	.65	---------	-------
1	25	H35	.80	---------	-------	---------	-------
			Form 10				
½	50	H110	.45	H119	.50	H114	.50
¾	25	H210	.55	---------	-------	---------	-------
1	25	H310	.80	---------	-------	---------	-------

Cadmium-galvanized is the standard finish.

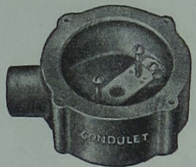
CROUSE-HINDS CONDULETS

GS SERIES

Schedule CR

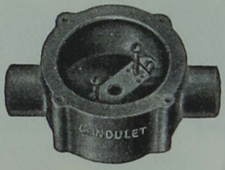
Take covers, fixtures, round base snap switches, vaportight fixtures, receptacles with housings, or connection blocks. Furnished with fastening straps for wiring devices.

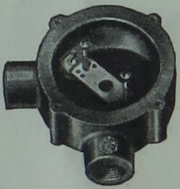
TYPES GS AND GSA



		Form 5		Form 10		Form 20	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
			Type GS				
½	25	GS15	$0.90	GS110	$0.90	GS120	$1.50
¾	25	GS25	1.05	GS210	1.05	GS220	1.65
1	10	GS35	1.25	GS310	1.25	GS320	1.85
			Type GSA				
½	25	GSA15	.90	GSA110	.90	GSA120	1.50
¾	25	GSA25	1.05	GSA210	1.05	GSA220	1.65
1	10	GSA35	1.25	GSA310	1.25	GSA320	1.85

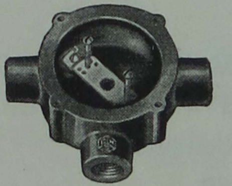
TYPES GSC AND GSL

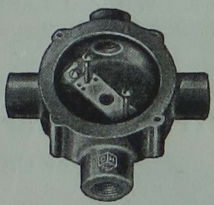




		Form 5		Form 10		Form 20	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
			Type GSC				
½	25	GSC15	$1.00	GSC110	$1.00	GSC120	$1.60
¾	25	GSC25	1.15	GSC210	1.15	GSC220	1.75
1	10	GSC35	1.35	GSC310	1.35	GSC320	1.95
			Type GSL				
½	25	GSL15	1.00	GSL110	1.00	GSL120	1.60
¾	25	GSL25	1.15	GSL210	1.15	GSL220	1.75
1	10	GSL35	1.35	GSL310	1.35	GSL320	1.95

TYPES GST AND GSX





		Form 5		Form 10		Form 20	
Size In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
			Type GST				
½	25	GST15	$1.20	GST110	$1.20	GST120	$1.80
¾	25	GST25	1.35	GST210	1.35	GST220	2.00
1	10	GST35	1.55	GST310	1.55	GST320	2.30
			Type GSX				
½	25	GSX15	1.35	GSX110	1.35	GSX120	1.95
¾	25	GSX25	1.50	GSX210	1.50	GSX220	2.20
1	10	GSX35	1.80	GSX310	1.80	GSX320	2.70

Forms 5, 10, and 20 indicate sizes of Condulets which take covers and wiring devices correspondingly classified.

If specified on order, GS series Condulets will be furnished with lugs at an advance of $0.15 in the list price.

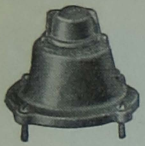
CROUSE-HINDS CONDULET COVERS

For GS Series Condulets

Schedule CR

SWITCH COVERS—VAPORTIGHT

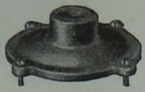
Furnished with Gasket



Cat. No.	Form	Std. Pkg.	Price Each
GS58	5	25	**$1.30**
GS108	10	25	**1.30**
GS208	20	25	**2.00**

HUB COVERS—VAPORTIGHT

Furnished with Gasket



Cat. No.	Form	Size Hub, In.	Std. Pkg.	Price Each
GS53	5	⅜	25	**$0.60**
GS54	5	½	25	**.60**
GS13	10	⅜	25	**.60**
GS14	10	½	25	**.60**
GS23	20	⅜	25	**1.00**
GS24	20	½	25	**1.00**
GS26	20	¾	25	**1.05**

BLANK COVERS

Furnished with Gaskets

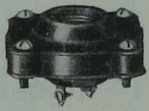
Cat. No.	Form	Std. Pkg.	Price Each
GS50	5	25	**$0.50**
GS100	10	25	**.50**
GS200	20	25	**.90**

Vaportight Only When Used with Flat Gaskets

Cat. No.	Form	Std. Pkg.	Price Each
GS50a	5	25	**$0.40**
GS100a	10	25	**.50**
GS200a	20	25	**.75**

LAMP RECEPTACLES

660-Watt—600-Volt



Keyless—Composition

Cat. No.	Description	Form	Std. Pkg.	Price Each
GS59	Without Lamp Grip..........	5	25	**$0.50**
GS569	With Lamp Grip..............	5	25	**.60**

CROUSE-HINDS TYPE GS HOUSINGS

TYPE GS RECEPTACLES WITH HOUSINGS

For GS Series Condulets

Schedule CR

15-Amp., 125-Volt or 10-Amp., 250-Volt

Housings are furnished with Receptacle for "Standard" Attachment Plug Caps.

With Spring Door

Cast Feraloy

		2-Wire, 2-Pole		2-Wire, 3-Pole*		3-Wire, 3-Pole	
Fm.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
5	25	**GS583**	**$3.10**	**GS584**	**$3.80**	**GS591**	**$3.80**
10	25	**GS183**	**3.10**	**GS184**	**3.80**	**GS191**	**3.80**
20	25	**GS283**	**3.70**	**GS284**	**4.40**	**GS291**	**4.40**

See opposite column for footnotes.

CROUSE-HINDS TYPE GS HOUSINGS

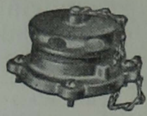
TYPE GS RECEPTACLES WITH HOUSINGS

For GS Series Condulets

Schedule CR

15-Amp., 125-Volt or 10-Amp., 250-Volt

Housings are furnished with Receptacle for "Standard" Attachment Plug Caps.



With Threaded Cap

Furnished with gasket.

Cast Feraloy

		2-Wire, 2-Pole		2-Wire, 3-Pole*		3-Wire, 3-Pole	
Fm.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
5	25	**GS581**	**$2.65**	**GS582**	**$3.35**	**GS590**	**$3.35**
10	25	**GS181**	**2.65**	**GS182**	**3.35**	**GS190**	**3.35**
20	25	**GS281**	**3.25**	**GS282**	**3.95**	**GS290**	**3.95**

Receptacles for Housings listed above: Form 5, C146, **$0.60**; Form 10, C148, **$1.30**; Form 20, C149, **$1.30.**

Forms 5, 10, and 20 indicate sizes of Condulets which take covers and wiring devices correspondingly classified.

*Third pole grounded.

CROUSE-HINDS TYPE BRG HOUSINGS

TYPE BRG RECEPTACLES WITH HOUSINGS

For GS Series Condulets

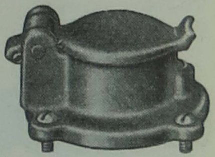
Schedule CR

30-Ampere, 250-Volt A.C.*

2-pole housings are furnished with Receptacle BR1302 or BR302; 3-pole housings are furnished with Receptacle BR1303 or BR303; 4-pole housings are furnished with Receptacle BR1304 or BR304. Takes Type BP Plugs.

With Spring Door

2-Pole



Cat. No.	Form	Material	Price Each
BRG56302	5	Feraloy	**$4.10**
BRG16302	10	Feraloy	**4.10**
BRG26302	20	Feraloy	**4.70**
BRG56302E	5	Bronze	**7.85**
BRG16302E	10	Bronze	**7.85**
BRG26302E	20	Bronze	**9.35**

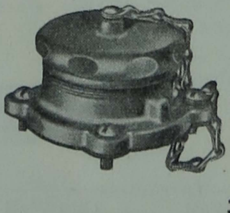
3 and 4-Pole

3-Pole				4-Pole	
Cat. No.	Price Each	Form	Material	Cat. No.	Price Each
BRG16303	**$5.05**	10	Feraloy	**BRG16304**	**$5.90**
BRG26303	**5.55**	20	Feraloy	**BRG26304**	**6.40**
BRG16303E	**9.50**	10	Bronze	**BRG16304E**	**10.85**
BRG26303E	**10.75**	20	Bronze	**BRG26304E**	**12.10**

With Threaded Cap

Furnished with Gaskets.

2-Pole



Cat. No	Form	Material	Price Each
BRG58302	5	Feraloy	**$3.65**
BRG18302	10	Feraloy	**3.65**
BRG28302	20	Feraloy	**4.25**
BRG58302E	5	Bronze	**5.30**
BRG18302E	10	Bronze	**5.30**
BRG28302E	20	Bronze	**6.80**

3 and 4-Pole

3-Pole				4-Pole	
Cat. No.	Price Each	Form	Material	Cat. No.	Price Each
BRG18303	**$4.85**	10	Feraloy	**BRG18304**	**$5.95**
BRG28303	**5.35**	20	Feraloy	**BRG28304**	**6.45**
BRG18303E	**7.55**	10	Bronze	**BRG18304E**	**9.55**
BRG28303E	**8.80**	20	Bronze	**BRG28304E**	**10.80**

Standard package quantity, 25.

*Can be used on 25-ampere, 125-volt D.C. circuits; or on 30-ampere, 250-volt D.C. circuits if circuit is broken before plug is withdrawn.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS TYPE BRG HOUSINGS

TYPE BRG RECEPTACLES WITH HOUSINGS

For GS Series Condulets

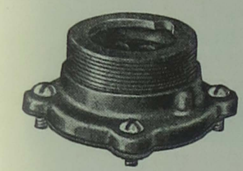
Schedule CR

30-Ampere, 250-Volt A.C.

2-pole housings are furnished with Receptacle BR1302 or BR302; 3-pole housings are furnished with Receptacle BR1303 or BR303; 4-pole housings are furnished with Receptacle BR1304 or BR304.

Without Threaded Cap

2-Pole



Cat. No.	Form	Material	Price Each
BRG57302	5	Feraloy	**$2.70**
BRG17302	10	Feraloy	**2.70**
BRG27302	20	Feraloy	**3.30**
BRG57302E	5	Bronze	**4.35**
BRG17302E	10	Bronze	**4.35**
BRG27302E	20	Bronze	**5.85**

3 and 4-Pole

3-Pole				4-Pole	
Cat. No.	Price Each	Form	Material	Cat. No.	Price Each
BRG17303	**$3.50**	10	Feraloy	**BRG17304**	**$4.20**
BRG27303	**4.00**	20	Feraloy	**BRG27304**	**4.70**
BRG17303E	**5.60**	10	Bronze	**BRG17304E**	**6.60**
BRG27303E	**6.85**	20	Bronze	**BRG27304E**	**7.85**

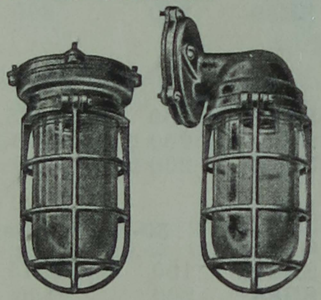
Standard package quantity, 25.

CROUSE-HINDS VAPORTIGHT FIXTURES

TYPE GS

For GS Series Form 20 Condulets

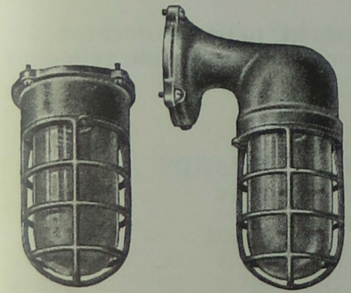
CLAMP GUARD TYPE



Form 100 is furnished with Globe V75 and Guard V97, and takes 50, 60, 75 or 100-watt lamps.

Form 200 is furnished with Globe V200 and Guard VH99, and takes 150 or 200-watt lamps.

With Globe and Guard		Pendent Type		Without Globe and Guard	
Cat. No.	Price Each	Size	Std. Pkg.	Cat. No.	Price Each
GS189	**$4.75**	Form 100	25	**GS1**	**$2.15**
GS389	**5.50**	Form 200	25	**GS3**	**2.45**
		Bracket Type			
GS289	**4.75**	Form 100	25	**GS2**	**2.15**
GS489	**5.50**	Form 200	25	**GS4**	**2.45**



SCREW GUARD TYPE

Form 100 is furnished with Globe V75 and Guard V911, and takes 50, 60, 75, or 100-watt lamps.

Form 200 is furnished with Globe V200 and Guard V912, and takes 150 or 200-watt lamps.

With Globe and Guard		Pendent Type		Without Globe and Guard	
Cat. No.	Price Each	Size	Std. Pkg.	Cat. No.	Price Each
GS675	**$4.75**	Form 100	25	**GS6**	**$2.15**
GS8200	**5.50**	Form 200	25	**GS8**	**2.45**
		Bracket Type			
GS775	**4.75**	Form 100	25	**GS7**	**2.15**
GS9200	**5.50**	Form 200	25	**GS9**	**2.45**

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

J-K SERIES

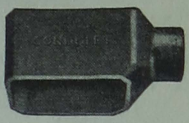
Threaded and Threadless Condulets

Schedule CR

Take wiring devices or blank covers.

TYPES J AND K

Type J



Type K

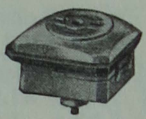
		Threaded		Threadless			
		Thick Wall		Thick Wall		Thin Wall	
Size In.	Std. Pkg.	Cat. No	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
½	100	**J1**	**$0.60**	**J19**	**$0.80**	**J14**	**$0.80**
¾	50	**J2**	**.75**	**J29**	**1.00**	**J24**	**1.00**
1	25	**J3**	**1.05**	------	------	------	------
½	100	**K1**	**.50**	**K19**	**.60**	**K14**	**.60**
¾	50	**K2**	**.65**	------	------	------	------
1	25	**K3**	**.95**	------	------	------	------

WIRING DEVICES

For J-K Series Condulets

Schedule CR

CC5



CC35

2-Pole Attachment Plug Receptacles

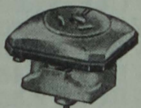
15-Amp., 125-Volt or 10-Amp., 250-Volt

Double T Slots				IT Slots		
Cat. No.	Std. Pkg.	Price Each	Material	Cat. No.	Std. Pkg.	Price Each
CC5	100	**$0.50**	Porcelain	**CC35**	100	**$0.50**

2-Pole Polarity Plug Receptacle

20-Amp., 250-Volt

Cat. No.	Material	Std. Pkg.	Price Each
CC20	Porcelain	100	**$0.65**



3-Wire, 3-Pole, and 2-Wire, 3-Pole Attachment Plug Receptacles

15-Amp., 125-Volt or 10-Amp., 250-Volt

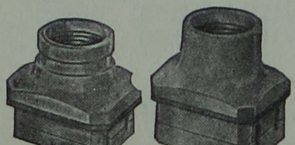
3-Wire, 3-Pole				2-Wire, 3-Pole*		
Cat. No.	Std. Pkg.	Price Each	Material	Cat. No.	Std. Pkg.	Price Each
CC13	100	**$0.70**	Porcelain	**CC17**	100	**$0.75**

*Extra pole grounded.

2-Pole Twist Lock Receptacle

20-Amp., 250-Volt

Cat. No.	Material	Std. Pkg.	Price Each
CC16	Porcelain	100	**$0.75**



Lamp Receptacles 660 Watts

Cat. No.	Volts	Std. Pkg.	Price Each
With Shade Holder Groove			
CC227g	600	100	**$0.45**
Without Shade Holder Groove			
CC227	600	100	**.40**

Cord Rosette

660-Watt, 250-Volt

Cat. No.	Material	Std. Pkg.	Price Each
CC332	Porcelain	100	**$0.50**

For lamp receptacle with lamp grip, add **$0.10.**

CROUSE-HINDS CONDULETS

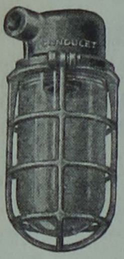
VAPORTIGHT INDUSTRIAL LIGHTING CONDULETS

Schedule CR

V AND VH SERIES—CLAMP GUARD TYPE

Form 100 is furnished with globe V75 and guard V97, and takes 50, 60, 75, or 100-watt lamps.

Form 200 is furnished with globe V200 and guard VH99, and takes 150 or 200-watt lamps.

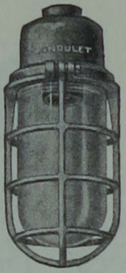


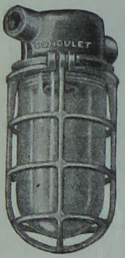
Types V and VH

		With Globe and Guard		Without Globe and Guard	
Size In.	Form	Cat. No.	Price Each	Cat. No.	Price Each
½	100	V189	$4.50	V1	$1.90
¾	100	V289	4.55	V2	1.95
1	100	V389	4.60	V3	2.00
½	200	VH189	5.40	VH1	2.35
¾	200	VH289	5.45	VH2	2.40
1	200	VH389	5.50	VH3	2.45

Types VA and VHA

		With Globe and Guard		Without Globe and Guard	
Size In.	Form	Cat. No.	Price Each	Cat. No.	Price Each
½	100	VA189	$4.50	VA1	$1.90
¾	100	VA289	4.55	VA2	1.95
1	100	VA389	4.60	VA3	2.00
½	200	VHA189	5.40	VHA1	2.35
¾	200	VHA289	5.45	VHA2	2.40
1	200	VHA389	5.50	VHA3	2.45



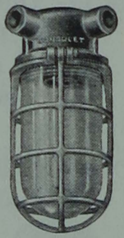


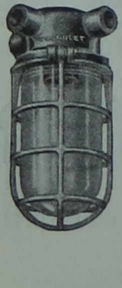
Types VC and VHC

		With Globe and Guard		Without Globe and Guard	
Size In.	Form	Cat. No.	Price Each	Cat. No.	Price Each
½	100	VC1189	$4.60	VC11	$2.00
¾	100	VC2289	4.70	VC22	2.10
1	100	VC3389	4.80	VC33	2.20
½	200	VHC1189	5.50	VHC11	2.45
¾	200	VHC2289	5.60	VHC22	2.55
1	200	VHC3389	5.65	VHC33	2.60

Types VL and VHL

		With Globe and Guard		Without Globe and Guard	
Size In.	Form	Cat. No.	Price Each	Cat. No.	Price Each
½	100	VL1189	$4.60	VL11	$2.00
¾	100	VL2289	4.70	VL22	2.10
1	100	VL3389	4.80	VL33	2.20
½	200	VHL1189	5.50	VHL11	2.45
¾	200	VHL2289	5.60	VHL22	2.55
1	200	VHL3389	5.65	VHL33	2.60



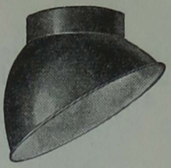


Types VT and VHT

		With Globe and Guard		Without Globe and Guard	
Size In.	Form	Cat. No.	Price Each	Cat. No.	Price Each
½	100	VT11189	$4.75	VT111	$2.15
¾	100	VT22289	4.85	VT222	2.25
1	100	VT33389	5.05	VT333	2.45
½	200	VHT11189	5.60	VHT111	2.55
¾	200	VHT22289	5.75	VHT222	2.70
1	200	VHT33389	5.85	VHT333	2.80

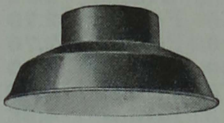
CROUSE-HINDS ACCESSORIES

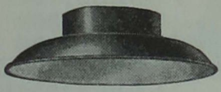
REFLECTORS


Angle

Schedule CR

For V and VH Series Condulets, Clamp Guard Type.


Dome


Shallow Bowl

Deep Bowl

Dome Reflectors

Cat. No.	Form	Lamp Size Watts	Size, Inches Diam.	Depth	Price Each
SH27	100	50, 60, 75, 100	12	5⅛	$2.75
SH28	200	150	14	6¼	3.25
SH29	200	200	16	7⅜	3.75

Shallow Bowl Reflectors

SH57	100	50, 60, 75, 100	12	3⅜	2.25
SH58	200	150	14	4 3/16	2.75
SH59	200	200	16	4 15/16	3.25

Deep Bowl Reflectors

SH47	100	50, 60, 75, 100	8	5 9/16	2.75
SH48	200	150	10	7	3.25
SH49	200	200	10	7¼	3.75

30-Degree Angle Reflectors

SH67‡	100	50, 60, 75, 100	10	8¼	2.00
SH68*	200	150	12	10¾	3.50
SH68*	200	200	12	10¾	3.50

Reflectors are green porcelain enamel outside; and white porcelain enamel inside.

‡Center line of Condulet must be located 4⅝ inches from the wall for mounting angle reflector.

*Center line of Condulet must be located 4⅞ inches from the wall for mounting angle reflector.

BASKET WIRE GUARDS

Schedule CR

Steel, tinned finish. For use with VDB, and V and VH series reflectors.

For 12-Inch Reflectors		For 14-Inch Reflectors		For 16-Inch Reflectors		For 18-Inch Reflectors	
Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
V932	$1.50	V934	$1.80	V936	$2.10	V938	$2.50

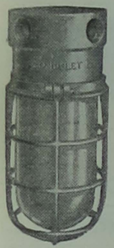
CROUSE-HINDS CONDULETS

TYPE VXHA VAPORTIGHT INDUSTRIAL LIGHTING CONDULETS

Schedule CR

Type VXHA Condulets are furnished with GS126M2 Lamp Receptacle and Gasket. Form 100 is furnished with Globe V75 and Guard V97 and takes Accessories and Parts, Clamp Guard Type, and 50, 60, 75, or 100-watt Lamps.

CLAMP GUARD TYPE



Type VXHA is a V series, Form 100, Clamp Guard Type, having threaded conduit hubs which are flush with the outside of the body. This Condulet has four hubs spaced 90 degrees apart around the side, and an additional hub in the center of the top. The Condulet is furnished with all hubs open or with one hub open and the others closed with flush type threaded pipe plugs. One or more conduits may be used with the Condulet in various ways by removing or changing the plugs to suit requirements.

With Globe and Guard

Cat. No.	Size In.	Form	Threaded Pipe Plugs	Price Each
VXHA112	½	100	4	$4.50
VXHA212	¾	100	4	4.55
VXHA312	1	100	4	4.60

Without Globe and Guard

Cat. No.	Size In.	Form	Threaded Pipe Plugs	Price Each
VXHA11	½	100	4	1.90
VXHA21	¾	100	4	1.95
VXHA31	1	100	4	2.00

Form 100 indicates size of Condulets. Accessories and parts are correspondingly classified.

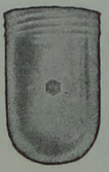
If specified on the order, lamp receptacle with lamp grip will be furnished at an advance of **$0.10** in the list price.

If specified on the order, pigtail receptacle will be furnished at an advance of **$0.45** in the list price.

Switch: These Condulets can be equipped with externally operated switch at an advance of **$1.00** in the list price.

CROUSE-HINDS ACCESSORIES

GLOBES



For V and VH Series Condulets, Clamp Guard Type.

Schedule CR

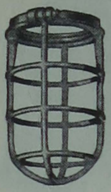
	Form 100				Form 200	
	5⅝ in. Long		6¾ in. Long		9¼ in. Long	
Globe	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
Clear	V15	$0.80	V75	$0.80	V200	$0.80
Opal	VN51	1.10	VN71	1.10	VO201	1.70
Green	VN52	1.70	VN72	1.70	VO202	2.35
Blue	VN53	1.70	VN73	1.70	VO203	2.35
Orange	VN54	1.70	VN74	1.70	VO204	2.35
Ruby	VN55	1.70	VN75	1.70	VO205	2.35
Amber	VN56	1.70	VN76	1.70	VO206	2.35
Prismatic Diffusing Globe						
Clear	-------	-------	V103	.80	-------	-------
Pyrex Globes — Heat-Resisting						
Clear	V153	1.25	V63	1.25	V93	2.00

CROUSE-HINDS ACCESSORIES

GUARDS FOR V AND VH SERIES

Clamp Guard Type

Schedule CR



Cast Aluminum Guards

	Form 100		Form 200	
For Globe	Cat. No.	Price Each	Cat. No.	Price Each
5⅝	V95	$1.80	-----------	-------
6¾	V97	1.80	-----------	-------
9¼	-------	-------	VH99	$2.25
With Reflector Holders				
6¾	V913	1.80	-----------	-------
9¼	-------	-------	VH914	2.25

Reflector Holders†

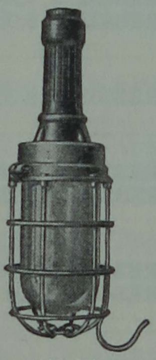
Form 100			Form 200	
Cat. No.	Price Each	Material	Cat. No.	Price Each
V625	$0.50	Aluminum	VH626	$0.65

†For clamping reflector to Condulet when guard is not used.

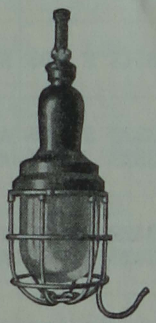
CROUSE-HINDS HAND LAMPS

TYPE VS VAPORTIGHT PORTABLE HAND LAMPS

Schedule CR



100-Watt Size Clamp Guard



60-Watt Size Screw Guard

Clamp guard type is furnished with globe, guard, receptacle, gasket, and vaportight gland in handle.

Screw guard type is furnished with globe, guard, receptacle, gasket, cord guard spring, and vaportight gland in handle.

Has additional binding screw terminal for grounding.

Cast Aluminum

Clamp Guard Type Rubber Handle					Screw Guard Type Cast Metal Handle	
Cat. No.	Price Each	Size Lamp, Watts	Size Cable	Size Globe	Cat. No.	Price Each
VS20	$6.15	60	.250 to	5⅝	VS61	$6.15
VS30	6.15	100	.625	6¾	VS71	6.15

If specified on the order, lamp receptacle with lamp grip will be furnished at an advance of **$0.10** in the list price.

GLOBES

For Type VS Hand Lamps

Clear, Plain			Clear, Pyrex	
Cat. No.	Price Each	Size	Cat. No.	Price Each
V15	$0.80	5⅝	V153	$1.25
V75	.80	6¾	V63	1.25

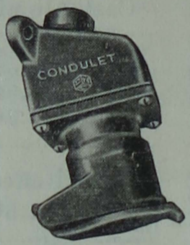
CROUSE-HINDS ARKTITE PLUGS AND RECEPTACLES

20, 30, AND 60-AMPERE — 250 Volts D.C., 600 Volts A.C.

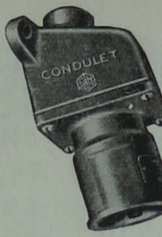
Schedule CR

Type ARE Receptacle Equipment

Style 1—Grounded Through Shell.
Style 2—Grounded Through Extra Pole and Shell.



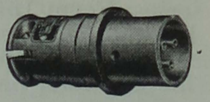
Spring Door



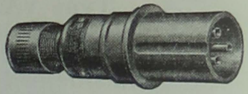
Plain

Types AP and APJ Plugs

Receptacles will take any of the plugs grouped in the bracket opposite the receptacle listings.



With Cable Clamp



With Rubber Cable Grip

		Description		Spring Door		Plain		With Cable Clamp			With Rubber Cable Grip		
				Cat. No.	List	Cat. No.	List	Dia. Cable	Cat. No.	List	Dia. Cable	Cat. No.	List
20-A.*‡	Style 1	2-Wire, 2-Pole*	½	ARE2211	$ 6.45	ARE2231	$ 5.75	.313 to .500	AP2211	$ 4.85	.250 to .500	APJ2251	$ 5.50
			¾	ARE2212	6.55	ARE2232	5.85	.500 to .750	AP2212	4.85	.500 to .875	APJ2253	5.50
30-A.‡	Style 1	2-Wire, 2-Pole	½	ARE3211	$ 7.25	ARE3231	$ 6.55	.438 to .750	AP3212	$ 5.50	.500 to .875	APJ3253	$ 6.15
			¾	ARE3212	7.35	ARE3232	6.65	.688 to .938	AP3214	5.50			
		3-Wire, 3-Pole	¾	ARE3312	$ 7.85	ARE3332	$ 7.15	.438 to .750	AP3312	$ 6.15	.500 to .875	APJ3353	$ 6.80
			1	ARE3313	7.95	ARE3333	7.25	.688 to .938	AP3314	6.15			
								.875 to 1.188	AP3315	6.15			
		4-Wire, 4-Pole	¾	ARE3412	$ 8.65	ARE3432	$ 7.95	.438 to .750	AP3412	$ 6.95	.500 to .875	APJ3453	$ 7.60
			1	ARE3413	8.75	ARE3433	8.05	.688 to .938	AP3414	6.95			
								.875 to 1.188	AP3415	6.95			
		5-Wire, 5-Pole	1	ARE3513	$ 9.95	ARE3533	$ 9.25	.500 to .875	AP3513	$ 8.20	.500 to .875	APJ3553	$ 8.85
	Style 2	2-Wire, 3-Pole	¾	ARE3322	$ 8.85	ARE3342	$ 8.15	.438 to .750	AP3322	$ 7.15	.500 to .875	APJ3363	$ 7.80
			1	ARE3323	8.95	ARE3343	8.25	.688 to .938	AP3324	7.15			
								.875 to 1.188	AP3325	7.15			
		3-Wire, 4-Pole	¾	ARE3422	$ 9.65	ARE3442	$ 8.95	.438 to .750	AP3422	$ 7.95	.500 to .875	APJ3463	$ 8.60
			1	ARE3423	9.75	ARE3443	9.05	.688 to .938	AP3424	7.95			
								.875 to 1.188	AP3425	7.95			
		4-Wire, 5-Pole	1	ARE3523	$11.50	ARE3543	$10.80	.500 to .875	AP3523	$ 9.85	.500 to .875	APJ3563	$10.50
60-A.‡	Style 1	2-Wire, 2-Pole	1	ARE6213	$11.65	ARE6233	$10.40	.500 to .875	AP6213	$ 7.75	.500 to .875	APJ6253	$ 8.75
			1¼	ARE6214	11.75	ARE6234	10.50	.750 to 1.188	AP6215	7.75	.875 to 1.375	APJ6255	8.75
		3-Wire, 3-Pole	1	ARE6313	$12.65	ARE6333	$11.40	.500 to .875	AP6313	$ 8.50	.500 to .875	APJ6353	$ 9.50
			1¼	ARE6314	12.75	ARE6334	11.50	.750 to 1.188	AP6315	8.50	.875 to 1.375	APJ6355	9.50
		4-Wire, 4-Pole	1¼	ARE6414	$14.75	ARE6434	$13.50	.688 to 1.000	AP6414	$ 9.50	.500 to .875	APJ6453	$10.50
			1½	ARE6415	14.85	ARE6435	13.60	.938 to 1.469	AP6416	9.50	.875 to 1.375	APJ6455	10.50
	Style 2	2-Wire, 3-Pole	1	ARE6323	$13.90	ARE6343	$12.65	.500 to .875	AP6323	$ 9.75	.500 to .875	APJ6363	$10.75
			1¼	ARE6324	14.00	ARE6344	12.75	.750 to 1.188	AP6325	9.75	.875 to 1.375	APJ6365	10.75
		3-Wire, 4-Pole	1¼	ARE6424	$16.00	ARE6444	$14.75	.688 to 1.000	AP6424	$10.75	.500 to .875	APJ6463	$11.75
			1½	ARE6425	16.10	ARE6445	14.85	.938 to 1.469	AP6426	10.75	.875 to 1.375	APJ6465	11.75

Plugs are made of cast aluminum.

*20-ampere, 2-pole plugs and receptacles have binding screw terminals, all others have soldered terminals.

‡20-ampere plugs and receptacles are interchangeable with former 15-ampere plugs and receptacles; 30-ampere (except the 2-wire, 2-pole), with former 15-ampere: 60-ampere, with former 30-ampere.

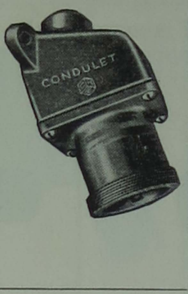
CROUSE-HINDS ARKTITE PLUGS AND RECEPTACLES

20, 30, AND 60-AMPERE — 250 Volts D.C., 600 Volts A.C.

Schedule CR

Type ARE Receptacle Equipment

Style 1—Grounded Through Shell.
Style 2—Grounded Through Extra Pole and Shell.



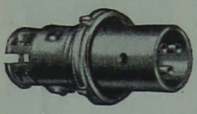
Threaded

With Cap

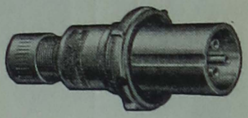
Types AP and APJ Plugs

Receptacles will take any of the plugs grouped in the bracket opposite the receptacle listings.

With Fastening Ring



With Cable Clamp



With Rubber Cable Grip

				Threaded		With Cap		With Cable Clamp			With Rubber Cable Grip		
Description				Cat. No.	List	Cat. No.	List	Dia. Cable	Cat. No.	List	Dia. Cable	Cat. No.	List
20-A.*‡	Style 1	2-Wire, 2-Pole*	½ ¾	ARE2251 ARE2252	$ 6.00 6.10	ARE2271 ARE2272	$ 6.80 6.90	.500 to .750	AP2232	$ 5.45	.250 to .500 .500 to .875	APJ2271 APJ2273	$ 6.10 6.10
30-A.‡	Style 1	2-Wire, 2-Pole	½ ¾	ARE3251 ARE3252	$ 6.80 6.90	ARE3271 ARE3272	$ 7.60 7.70	.438 to .750 .688 to .938	AP3232 AP3234	$ 6.10 6.10	.500 to .875	APJ3273	$ 6.75
		3-Wire, 3-Pole	¾ 1	ARE3352 ARE3353	$ 7.40 7.50	ARE3372 ARE3373	$ 8.20 8.30	.438 to .750 .688 to .938 .875 to 1.188	AP3332 AP3334 AP3335	$ 6.75 6.75 6.75	.500 to .875	APJ3373	$ 7.40
		4-Wire, 4-Pole	¾ 1	ARE3452 ARE3453	$ 8.20 8.30	ARE3472 ARE3473	$ 9.00 9.10	.438 to .750 .688 to .938 .875 to 1.188	AP3432 AP3434 AP3435	$ 7.55 7.55 7.55	.500 to .875	APJ3473	$ 8.20
		5-Wire, 5-Pole	1	ARE3553	$ 9.50	ARE3573	$10.30	.500 to .875	AP3533	$ 8.80	.500 to .875	APJ3573	$ 9.45
	Style 2	2-Wire, 3-Pole	¾ 1	ARE3362 ARE3363	$ 8.40 8.50	ARE3382 ARE3383	$ 9.20 9.30	.438 to .750 .688 to .938 .875 to 1.188	AP3342 AP3344 AP3345	$ 7.75 7.75 7.75	.500 to .875	APJ3383	$ 8.40
		3-Wire, 4-Pole	¾ 1	ARE3462 ARE3463	$ 9.20 9.30	ARE3482 ARE3483	$10.00 10.10	.438 to .750 .688 to .938 .875 to 1.188	AP3442 AP3444 AP3445	$ 8.55 8.55 8.55	.500 to .875	APJ3483	$ 9.20
		4-Wire, 5-Pole	1	ARE3563	$10.95	ARE3583	$11.75	.500 to .875	AP3543	$10.45	.500 to .875	APJ3583	$11.10
60-A.‡	Style 1	2-Wire, 2-Pole	1 1¼	ARE6253 ARE6254	$10.75 10.85	ARE6273 ARE6274	$11.85 11.95	.500 to .875 .750 to 1.188	AP6233 AP6235	$ 8.75 8.75	.500 to .875 .875 to 1.375	APJ6273 APJ6275	$ 9.75 9.75
		3-Wire, 3-Pole	1 1¼	ARE6353 ARE6354	$11.75 11.85	ARE6373 ARE6374	$12.85 12.95	.500 to .875 .750 to 1.188	AP6333 AP6335	$ 9.50 9.50	.500 to .875 .875 to 1.375	APJ6373 APJ6375	$10.50 10.50
		4-Wire, 4-Pole	1¼ 1½	ARE6454 ARE6455	$13.85 13.95	ARE6474 ARE6475	$14.95 15.05	.688 to 1.000 .938 to 1.469	AP6434 AP6436	$10.50 10.50	.500 to .875 .875 to 1.375	APJ6473 APJ6475	$11.50 11.50
	Style 2	2-Wire, 3-Pole	1 1¼	ARE6363 ARE6364	$13.00 13.10	ARE6383 ARE6384	$14.10 14.20	.500 to .875 .750 to 1.188	AP6343 AP6345	$10.75 10.75	.500 to .875 .875 to 1.375	APJ6383 APJ6385	$11.75 11.75
		3-Wire, 4-Pole	1¼ 1½	ARE6464 ARE6465	$15.10 15.20	ARE6484 ARE6485	$16.20 16.30	.688 to 1.000 .938 to 1.469	AP6444 AP6446	$11.75 11.75	.500 to .875 .875 to 1.375	APJ6483 APJ6485	$12.75 12.75

Plugs are made of cast aluminum.

*20-ampere, 2-pole plugs and receptacles have binding screw terminals, all others have soldered terminals.

‡20-ampere plugs and receptacles are interchangeable with former 15-ampere plugs and receptacles; 30-ampere (except the 2-wire, 2-pole), with former 15-ampere; 60-ampere, with former 30-ampere.

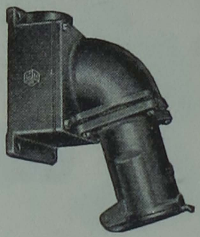
CROUSE-HINDS ARKTITE PLUGS AND RECEPTACLES

60 AND 100-AMPERE — 250 Volts D.C., 600 Volts A.C.

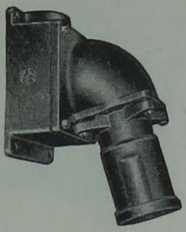
Schedule CR

Type AREA Receptacle Equipment

Style 1 Grounded Through Shell.
Style 2 Grounded Through Extra Pole and Shell.



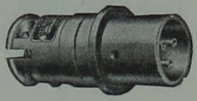
Spring Door



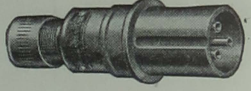
Plain

Types AP and APJ Plugs

Receptacles will take any of the plugs grouped in the bracket opposite the receptacle listings.



With Cable Clamp



With Rubber Cable Grip†

Description				Spring Door		Plain		With Cable Clamp			With Rubber Cable Grip†		
				Cat. No.	List	Cat. No.	List	Dia. Cable	Cat. No.	List	Dia. Cable	Cat. No.	List
60-A.‡	Style 1	2-Wire, 2-Pole	1	AREA6213	$17.70	AREA6233	$16.45	.500 to .875	AP6213	$ 7.75	.500 to .875	APJ6253	$ 8.75
			1¼	AREA6214	17.75	AREA6234	16.50	.750 to 1.188	AP6215	7.75	.875 to 1.375	APJ6255	8.75
		3-Wire, 3-Pole	1	AREA6313	$18.70	AREA6333	$17.45	.500 to .875	AP6313	$ 8.50	.500 to .875	APJ6353	$ 9.50
			1¼	AREA6314	18.75	AREA6334	17.50	.750 to 1.188	AP6315	8.50	.875 to 1.375	APJ6355	9.50
		4-Wire, 4-Pole	1¼	AREA6414	$20.75	AREA6434	$19.50	.688 to 1.000	AP6414	$ 9.50	.500 to .875	APJ6453	$10.50
			1½	AREA6415	20.80	AREA6435	19.55	.938 to 1.469	AP6416	9.50	.875 to 1.375	APJ6455	10.50
	Style 2	2-Wire, 3-Pole	1	AREA6323	$19.95	AREA6343	$18.70	.500 to .875	AP6323	$ 9.75	.500 to .875	APJ6363	$10.75
			1¼	AREA6324	20.00	AREA6344	18.75	.750 to 1.188	AP6325	9.75	.875 to 1.375	APJ6365	10.75
		3-Wire, 4-Pole	1¼	AREA6424	$22.00	AREA6444	$20.75	.688 to 1.000	AP6424	$10.75	.500 to .875	APJ6463	$11.75
			1½	AREA6425	22.05	AREA6445	20.80	.938 to 1.469	AP6426	10.75	.875 to 1.375	APJ6465	11.75
100-A.‡	Style 1	2-Wire, 2-Pole	1¼	AREA10214	$20.75	AREA10234	$19.25	.750 to 1.188	AP10215	$12.50	.500 to .875	AP10253	$14.00
			1½	AREA10215	20.80	AREA10235	19.30	1.188 to 1.813	AP10217	12.50	.875 to 1.375	AP10255	14.00
											1.375 to 1.875	AP10257	14.00
		3-Wire, 3-Pole	1¼	AREA10314	$21.75	AREA10334	$20.25	.750 to 1.188	AP10315	$13.50	.500 to .875	AP10353	$15.00
			1½	AREA10315	21.80	AREA10335	20.30	1.188 to 1.813	AP10317	13.50	.875 to 1.375	AP10355	15.00
											1.375 to 1.875	AP10357	15.00
		4-Wire, 4-Pole	1½	AREA10415	$23.80	AREA10435	$22.30	.938 to 1.313	AP10416	$15.50	.500 to .875	AP10453	$17.00
			2	AREA10416	23.85	AREA10436	22.35	1.313 to 2.063	AP10417	15.50	.875 to 1.375	AP10455	17.00
											1.375 to 1.875	AP10457	17.00
	Style 2	2-Wire, 3-Pole	1¼	AREA10324	$23.25	AREA10344	$21.75	.750 to 1.188	AP10325	$15.00	.500 to .875	AP10363	$16.50
			1½	AREA10325	23.30	AREA10345	21.80	1.188 to 1.813	AP10327	15.00	.875 to 1.375	AP10365	16.50
											1.375 to 1.875	AP10367	16.50
		3-Wire, 4-Pole	1½	AREA10425	$25.30	AREA10445	$23.80	.938 to 1.313	AP10426	$17.00	.500 to .875	AP10463	$18.50
			2	AREA10426	25.35	AREA10446	23.85	1.313 to 2.063	AP10427	17.00	.875 to 1.375	AP10465	18.50
											1.375 to 1.875	AP10467	18.50

Above types can also be furnished in 200 and 400 ampere sizes.

Plugs are made of cast aluminum.

Type AREA Condulet is square, and can therefore be mounted with the hub at top, bottom, right, or left.

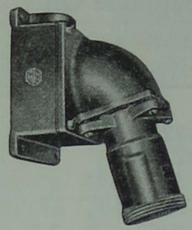
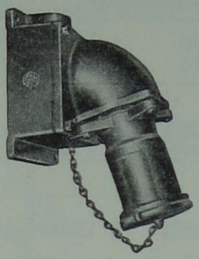
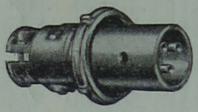
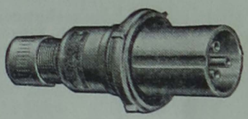
†100-ampere, also furnished with auxiliary metal cable clamp.

‡60-ampere plugs and receptacles are interchangeable with former 30-ampere; 100-ampere, with former 60-ampere.

CROUSE-HINDS ARKTITE PLUGS AND RECEPTACLES

60 AND 100-AMPERE — 250 Volts D.C., 600 Volts A.C.

Schedule CR

Type AREA Receptacle Equipment								Types AP and APJ Plugs					
								Receptacles will take any of the plugs grouped in the bracket opposite the receptacle listings.					
								With Fastening Ring					
Style 1 Grounded Through Shell. Style 2 Grounded Through Extra Pole and Shell.													
				Threaded		With Cap		With Cable Clamp			With Rubber Cable Grip†		
Description				Cat. No.	List	Cat. No.	List	Dia. Cable	Cat. No.	List	Dia. Cable	Cat. No.	List
60-A.‡	Style 1	2-Wire, 2-Pole	1	AREA6253	$16.80	AREA6273	$17.90	.500 to .875	AP6233	$ 8.75	.500 to .875	APJ6273	$ 9.75
			1¼	AREA6254	16.85	AREA6274	17.95	.750 to 1.188	AP6235	8.75	.875 to 1.375	APJ6275	9.75
		3-Wire, 3-Pole	1	AREA6353	$17.80	AREA6373	$18.90	.500 to .875	AP6333	$ 9.50	.500 to .875	APJ6373	$10.50
			1¼	AREA6354	17.85	AREA6374	18.95	.750 to 1.188	AP6335	9.50	.875 to 1.375	APJ6375	10.50
		4-Wire, 4-Pole	1¼	AREA6454	$19.85	AREA6474	$20.95	.688 to 1.000	AP6434	$10.50	.500 to .875	APJ6473	$11.50
			1½	AREA6455	19.90	AREA6475	21.00	.938 to 1.469	AP6436	10.50	.875 to 1.375	APJ6475	11.50
	Style 2	2-Wire, 3-Pole	1	AREA6363	$19.05	AREA6383	$20.15	.500 to .875	AP6343	$10.75	.500 to .875	APJ6383	$11.75
			1¼	AREA6364	19.10	AREA6384	20.20	.750 to 1.188	AP6345	10.75	.875 to 1.375	APJ6385	11.75
		3-Wire, 4-Pole	1¼	AREA6464	$21.10	AREA6484	$22.20	.688 to 1.000	AP6444	$11.75	.500 to .875	APJ6483	$12.75
			1½	AREA6465	21.15	AREA6485	22.25	.938 to 1.469	AP6446	11.75	.875 to 1.375	APJ6485	12.75
100-A.‡	Style 1	2-Wire, 2-Pole	1¼	AREA10254	$19.75	AREA10274	$21.75	.750 to 1.188	AP10235	$14.00	.500 to .875	AP10273	$15.50
			1½	AREA10255	19.80	AREA10275	21.80	1.188 to 1.813	AP10237	14.00	.875 to 1.375	AP10275	15.50
											1.375 to 1.875	AP10277	15.50
		3-Wire, 3-Pole	1¼	AREA10354	$20.75	AREA10374	$22.75	.750 to 1.188	AP10335	$15.00	.500 to .875	AP10373	$16.50
			1½	AREA10355	20.80	AREA10375	22.80	1.188 to 1.813	AP10337	15.00	.875 to 1.375	AP10375	16.50
											1.375 to 1.875	AP10377	16.50
		4-Wire, 4-Pole	1½	AREA10455	$22.80	AREA10475	$24.80	.938 to 1.313	AP10436	$17.00	.500 to .875	AP10473	$18.50
			2	AREA10456	22.85	AREA10476	24.85	1.313 to 2.063	AP10437	17.00	.875 to 1.375	AP10475	18.50
											1.375 to 1.875	AP10477	18.50
	Style 2	2-Wire, 3-Pole	1¼	AREA10364	$22.25	AREA10384	$24.25	.750 to 1.188	AP10345	$16.50	.500 to .875	AP10383	$18.00
			1½	AREA10365	22.30	AREA10385	24.30	1.188 to 1.813	AP10347	16.50	.875 to 1.375	AP10385	18.00
											1.375 to 1.875	AP10387	18.00
		3-Wire, 4-Pole	1½	AREA10465	$24.30	AREA10485	$26.30	.938 to 1.313	AP10446	$18.50	.500 to .875	AP10483	$20.00
			2	AREA10466	24.35	AREA10486	26.35	1.313 to 2.063	AP10447	18.50	.875 to 1.375	AP10485	20.00
											1.375 to 1.875	AP10487	20.00

Above types can also be furnished in 200 and 400 ampere sizes.

Plugs are made of cast aluminum.

Type AREA Condulet is square, and can therefore be mounted with the hub at top, bottom, right, or left.

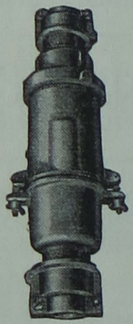
†100-ampere, also furnished with auxiliary metal cable clamp.

‡60-ampere plugs and receptacles are interchangeable with former 30-ampere; 100-ampere, with former 60-ampere.

CROUSE-HINDS ARKTITE EXTENSION CABLE CONNECTORS

With Rubber Bushing — Watertight

20, 30, 60, 100, 200, AND 400-AMPERE

Illustrations	250 Volts D. C. 600 Volts A. C.†			Style 1 Grounded Through Shell					
	Capacity		Diameter Cable	Complete		Receptacle Only		Plug Only	
				Cat. No.	List, each	Cat. No.	List, each	Cat. No.	List, each
	20-A. Interchangeable with Former 15-A. Equipment	2-Wire, 2-Pole*	.250 to .500	APC2251	$ 13.60	APR2251	$ 7.00	AP2271	$ 6.60
			.500 to .875	APC2253	13.60	APR2253	7.00	AP2273	6.60
	30-A. Interchangeable with Former 15-A. Equipment (Except 2-Wire, 2-Pole)	2-Wire, 2-Pole	.500 to .875	APC3253	$ 15.00	APR3253	$ 7.75	AP3273	$ 7.25
		3-Wire, 3-Pole	.500 to .875	APC3353	$ 16.20	APR3353	$ 8.30	AP3373	$ 7.90
		4-Wire, 4-Pole	.500 to .875	APC3453	$ 17.80	APR3453	$ 9.10	AP3473	$ 8.70
		5-Wire, 5-Pole	.500 to .875	APC3553	$ 20.25	APR3553	$ 10.30	AP3573	$ 9.95
	60-A. Interchangeable with Former 30-A. Equipment	2-Wire, 2-Pole	.500 to .875	APC6253	$ 23.85	APR6253	$ 13.10	AP6273	$10.75
			.875 to 1.375	APC6255	23.85	APR6255	13.10	AP6275	10.75
		3-Wire, 3-Pole	.500 to .875	APC6353	$ 25.60	APR6353	$ 14.10	AP6373	$11.50
			.875 to 1.375	APC6355	25.60	APR6355	14.10	AP6375	11.50
		4-Wire, 4-Pole	.500 to .875	APC6453	$ 28.60	APR6453	$ 16.10	AP6473	$12.50
			.875 to 1.375	APC6455	28.60	APR6455	16.10	AP6475	12.50
	100-A. Interchangeable with Former 60-A. Equipment	2-Wire, 2-Pole	.500 to .875	APC10253	$ 35.00	APR10253	$ 19.50	AP10273	$15.50
			.875 to 1.375	APC10255	35.00	APR10255	19.50	AP10275	15.50
			1.375 to 1.875	APC10257	35.00	APR10257	19.50	AP10277	15.50
		3-Wire, 3-Pole	.500 to .875	APC10353	$ 37.00	APR10353	$ 20.50	AP10373	$16.50
			.875 to 1.375	APC10355	37.00	APR10355	20.50	AP10375	16.50
			1.375 to 1.875	APC10357	37.00	APR10357	20.50	AP10377	16.50
		4-Wire, 4-Pole	.500 to .875	APC10453	$ 41.00	APR10453	$ 22.50	AP10473	$18.50
			.875 to 1.375	APC10455	41.00	APR10455	22.50	AP10475	18.50
			1.375 to 1.875	APC10457	41.00	APR10457	22.50	AP10477	18.50
	**200-A.** Interchangeable with Former 100-A. Equipment	2-Wire, 2-Pole	.875 to 1.375	APC20215	$ 87.50	APR20215	$ 47.50	AP20255	$40.00
			1.375 to 1.875	APC20217	87.50	APR20217	47.50	AP20257	40.00
			1.875 to 2.500	APC20218	87.50	APR20218	47.50	AP20258	40.00
		3-Wire, 3-Pole	.875 to 1.375	APC20315	$ 93.75	APR20315	$ 50.75	AP20355	$43.00
			1.375 to 1.875	APC20317	93.75	APR20317	50.75	AP20357	43.00
			1.875 to 2.500	APC20318	93.75	APR20318	50.75	AP20358	43.00
		4-Wire, 4-Pole	.875 to 1.375	APC20415	$111.00	APR20415	$ 60.00	AP20455	$51.00
			1.375 to 1.875	APC20417	111.00	APR20417	60.00	AP20457	51.00
			1.875 to 2.500	APC20418	111.00	APR20418	60.00	AP20458	51.00
	400-A. 250 Volts D.C. or A.C. 200-A. 600 Volts A. C. Interchangeable with Former 200-A. Equipment	2-Wire, 2-Pole	.875 to 1.375	APC40215	$175.00	APR40215	$110.00	AP40255	$65.00
			1.375 to 1.875	APC40217	175.00	APR40217	110.00	AP40257	65.00
			1.875 to 2.500	APC40218	175.00	APR40218	110.00	AP40258	65.00
		3-Wire, 3-Pole	.875 to 1.375	APC40315	$195.00	APR40315	$125.00	AP40355	$70.00
			1.375 to 1.875	APC40317	195.00	APR40317	125.00	AP40357	70.00
			1.875 to 2.500	APC40318	195.00	APR40318	125.00	AP40358	70.00
		4-Wire, 4-Pole	.875 to 1.375	APC40415	$235.00	APR40415	$153.00	AP40455	$82.00
			1.375 to 1.875	APC40417	235.00	APR40417	153.00	AP40457	82.00
			1.875 to 2.500	APC40418	235.00	APR40418	153.00	AP40458	82.00

Plugs are made of cast aluminum.

*20-ampere, 2-pole plugs and receptacles have binding screw terminals, all others have soldered terminals.

†Except 400-ampere size, which is rated at 200 amperes only, at 600 volts, A.C.

Discounts: Schedule "CR"

CROUSE-HINDS TYPE BP PLUGS

For use with types BRD, BRG and QE Receptacles with Housings.

Schedule CR

FOR FLEXIBLE CABLE

Without Clamping Nut

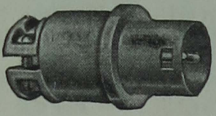
Furnished with cable clamp. With composition handles (non watertight).

†20-Ampere, 250-Volt A.C.

Cat. No.	Pole	Diam. Clamp Opening	Std. Pkg.	Price Each
BP22	2	.500 to .844 (a)	25	**$3.60**
		***30-Ampere, 250-Volt A.C.**		
BP32	2	.500 to .844 (a)	25	**3.60**

FOR FLEXIBLE CONDUCTOR, FLEXIBLE CONDUIT, OR ARMORED CONDUCTOR

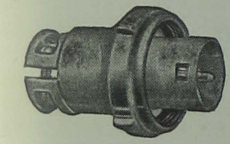
Without Clamping Nut



Furnished with cable clamp. With cast aluminum handles (non-watertight).

†20-Ampere, 250-Volt A.C.

Cat. No.	Pole	Diam. Clamp Opening	Std. Pkg.	Price Each
BP522	2	.500 to .875 (b)	25	**$2.85**
BP523	3	.625 to 1.125 (c)	25	**3.75**
BP524	4	.625 to 1.125 (c)	25	**4.50**
		***30-Ampere, 250-Volt A.C.**		
BP532	2	.500 to .875 (b)	25	**2.85**
BP533	3	.625 to 1.125 (c)	25	**3.75**
BP534	4	.625 to 1.125 (c)	25	**4.50**



With Clamping Nut

Furnished with cable clamp. With cast aluminum handles (non-watertight).

†20-Ampere, 250-Volt A.C.

Cat. No.	Pole	Diam. Clamp Opening	Std. Pkg.	Price Each
BP722	2	.500 to .875 (b)	25	**$3.35**
BP723	3	.625 to 1.125 (c)	25	**4.50**
BP724	4	.625 to 1.125 (c)	25	**5.50**
		***30-Ampere, 250-Volt A.C.**		
BP732	2	.500 to .875 (b)	25	**3.35**
BP733	3	.625 to 1.125 (c)	25	**4.50**
BP734	4	.625 to 1.125 (c)	25	**5.50**

Cadmium-galvanized is the standard finish.

*Can be used on 25-ampere, 125-volt D.C. circuits; or on 30-ampere, 250-volt D.C. circuits if circuit is broken before plug is withdrawn.

†Can be used on 20-ampere, 125-volt D.C. circuits; or on 20-ampere, 250-volt D.C. circuits if circuit is broken before plug is withdrawn.

(a) Clamp opening ½ to $\frac{27}{32}$ inch takes most of the 2-wire and 3-wire rubber sheathed, fabric sheathed, and deck cables No. 14 to No. 8.

(b) Clamp opening ½ to ⅞ inch takes ⅜-inch and ½-inch flexible conduit, No. 14 to No. 8 two or three-conductor armored cable, and most of the 2-wire and 3-wire rubber sheathed, fabric sheathed, and deck cables No. 14 to No. 8.

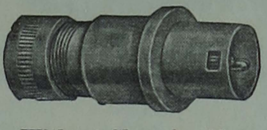
(c) Clamp opening ⅝ to 1⅛ inch takes ½-inch and ¾-inch flexible conduit, No. 10 to No. 6 three-conductor armored cable, and most of the 3-wire and 4-wire rubber sheathed, fabric sheathed, and deck cables No. 12 to No. 6.

CROUSE-HINDS TYPE BP PLUGS

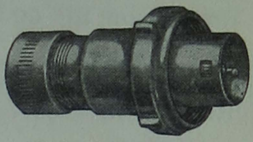
Schedule CR

FOR FLEXIBLE CABLE

Furnished with gland nut, tapered rubber bushing, and cast aluminum handles.



Without Clamping Nut



With Clamping Nut

WITHOUT CLAMPING NUT

Diam. Clamp Opening	Std. Pkg.	2-Pole Cat. No.	2-Pole Price Each	3-Pole Cat. No.	3-Pole Price Each	4-Pole Cat. No.	4-Pole Price Each
		†20-Ampere, 250-Volt A.C.					
.375 to .500	25	**BP6422**	**$3.40**	**BP6423**	**$4.15**	**BP6424**	**$4.90**
.500 to .625	25	**BP6522**	**3.60**	**BP6523**	**4.35**	**BP6524**	**5.10**
.625 to .750	25	**BP6622**	**3.80**	**BP6623**	**4.55**	**BP6624**	**5.30**
.750 to .875	25	**BP6722**	**4.00**	**BP6723**	**4.75**	**BP6724**	**5.50**
.875 to 1.000	25	....	....	**BP6823**	**4.95**	**BP6824**	**5.70**
		***30-Ampere, 250-Volt A.C.**					
.375 to .500	25	**BP6432**	**3.40**	**BP6433**	**4.15**	**BP6434**	**4.90**
.500 to .625	25	**BP6532**	**3.60**	**BP6533**	**4.35**	**BP6534**	**5.10**
.625 to .750	25	**BP6632**	**3.80**	**BP6633**	**4.55**	**BP6634**	**5.30**
.750 to .875	25	**BP6732**	**4.00**	**BP6733**	**4.75**	**BP6734**	**5.50**
.875 to 1.000	25	....	....	**BP6833**	**4.95**	**BP6834**	**5.70**
		WITH CLAMPING NUT—WATERTIGHT					
		†20-Ampere, 250-Volt A.C.					
.375 to .500	25	**BP8422**	**$3.90**	**BP8423**	**$4.90**	**BP8424**	**$5.90**
.500 to .625	25	**BP8522**	**4.10**	**BP8523**	**5.10**	**BP8524**	**6.10**
.625 to .750	25	**BP8622**	**4.30**	**BP8623**	**5.30**	**BP8624**	**6.30**
.750 to .875	25	**BP8722**	**4.50**	**BP8723**	**5.50**	**BP8724**	**6.50**
.875 to 1.000	25	....	....	**BP8823**	**5.70**	**BP8824**	**6.70**
		***30-Ampere, 250-Volt A.C.**					
.375 to .500	25	**BP8432**	**3.90**	**BP8433**	**4.90**	**BP8434**	**5.90**
.500 to .625	25	**BP8532**	**4.10**	**BP8533**	**5.10**	**BP8534**	**6.10**
.625 to .750	25	**BP8632**	**4.30**	**BP8633**	**5.30**	**BP8634**	**6.30**
.750 to .875	25	**BP8732**	**4.50**	**BP8733**	**5.50**	**BP8734**	**6.50**
.875 to 1.000	25	....	....	**BP8833**	**5.70**	**BP8834**	**6.70**

CROUSE-HINDS RECEPTACLE HOUSINGS

For QE Series Condulets

Take Type BP 30-Ampere, 250-Volt A.C. Plugs*

2-pole housings are furnished with 30-ampere, 250-volt A.C. receptacle BR302. 3-pole housings are furnished with 30-ampere, 250-volt receptacle BR1303. Threaded housings are also furnished with gaskets.

With Spring Door

Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE6302	Form 10	2	25	**$4.60**
QE6303	Form 10	3	25	**5.30**

Without Spring Door

Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE302	Form 10	2	25	**$3.00**
QE303	Form 10	3	25	**3.50**

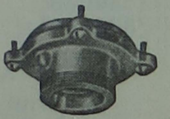
With Threaded Cap

Furnished with gaskets

Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE8302	Form 10	2	25	**$4.15**
QE8303	Form 10	3	25	**5.10**

Without Threaded Cap

Furnished with gasket.



Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE7302	Form 10	2	25	**$3.20**
QE7303	Form 10	3	25	**3.75**

*Can be used on 25-ampere, 125-volt D.C. circuits; or on 30-ampere, 250-volt D.C. circuits if circuit is broken before plug is withdrawn.

†Can be used on 20-ampere, 125-volt D.C. circuits; or on 20-ampere, 250-volt D.C. circuits if circuit is broken before plug is withdrawn.

Cadmium-galvanized is the standard finish.

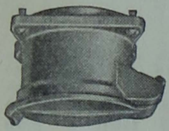
CROUSE-HINDS RECEPTACLE HOUSINGS AND PLUGS

Schedule CR

TYPE QE RECEPTACLES WITH HOUSINGS

Take Type BP 60-Ampere, 600-Volt Plugs

Furnished with 3-pole, 60-ampere, 600-volt receptacle BR6036*. Threaded housings are also furnished with gaskets.



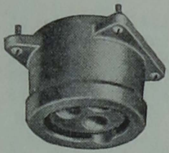
With Spring Door

Take type BP 60-ampere, 600-volt plugs.

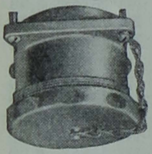
Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE66036	Form 20	3	10	$7.95

Without Spring Door

Take type BP 60-ampere, 600-volt plugs.



Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE6036	Form 20	3	10	$6.45



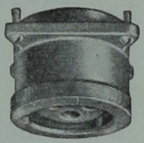
With Threaded Cap

Take type BP 60-ampere, 600-volt plugs. Furnished with gasket.

Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE86036	Form 20	3	10	$8.95

Without Threaded Cap

Take type BP 60-ampere, 600-volt plugs. Furnished with gasket.



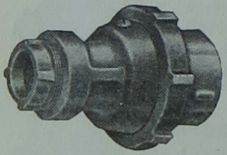
Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE76036	Form 20	3	10	$6.70

*Underwriters rules require an approved switch in series with a receptacle of this rating.

TYPE BP PLUGS

60-Ampere, 600-Volt

For receptacle BR6036 in housings QE76036 and QE86036.



Watertight plugs are furnished with rubber bushings and gland nuts. Plugs for armored cable are furnished with tapered split lead sleeves.

For Flexible Cable—With Gasket

With Clamping Nut and Rubber Bushing (Watertight)

Cat. No.	Diameter Cable	Pole	Std. Pkg.	Price Each
BP846036	1.000 to 1.188	3	10	$9.50
BP866036	.875 to 1.000	3	10	9.50

For Armored Cable—With Gasket

With Clamping Nut and Lead Sleeve
(Can be made Watertight with Sealing Compound)

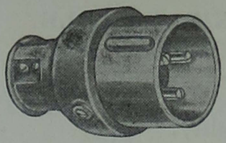
Cat. No.	Diameter Cable	Pole	Std. Pkg.	Price Each
BP306036	.625 to .781	3	10	9.50
BP326036	.781 to .938	3	10	9.50
BP346036	.938 to 1.156	3	10	9.50
BP396036	1.156 to 1.375	3	10	9.50

Cadmium-galvanized is the standard finish.

CROUSE-HINDS RECEPTACLE HOUSINGS AND PLUGS

Schedule CR

TYPE BP PLUGS



For Flexible or Armored Cable Without Clamping Nut

For receptacle BR6036 in housings QE6036, QE66036, QE76036, and QE86036.

60-Ampere, 600-Volt

Cat. No.	Diameter Cable	Pole	Std. Pkg.	Price Each
BP46036	.813 to 1.063	3	10	$7.75

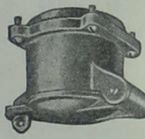
TYPE QE RECEPTACLES WITH HOUSINGS

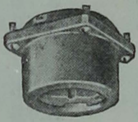
Take Type RQ 30-Ampere, 250-Volt Plugs

2-pole housings are furnished with 30-ampere, 250-volt receptacle RQH302, 3-pole housings are furnished with 30-ampere, 250-volt receptacle RQH303, 2-wire, 3-pole housings, with 30-ampere, 250-volt receptacle RQH2302.

With Spring Door

Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE1066	Form 10	2	25	$3.60
QE1266	Form 10	3‡	25	3.90
QE2066	Form 20	3	25	5.10





Without Spring Door

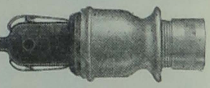
Cat. No.	For QE Series	Pole	Std. Pkg.	Price Each
QE106	Form 10	2	25	$2.80
QE126	Form 10	3‡	25	3.10
QE206	Form 20	3	25	4.10

TYPE RQ PLUGS

30-Ampere, 250-Volt

For plug receptacles RQH302, RQH303, and RQH2302.

Cat. No.	Pole	Std. Pkg.	Price Each
RQ302	2	25	$3.50
RQ2302	3‡	25	3.50
RQ303	3	25	5.00



‡2-wire, 3-pole. Third pole grounded.

CROUSE-HINDS CONDULETS

QE SERIES CONDULETS

Schedule CR

Take housings for plug receptacles.

TYPES QEE AND QEF

Type QEE		Size			Type QEF	
Cat. No.	Price Each	Form	Conduit	Std. Pkg.	Cat. No.	Price Each
QEE110	$1.00	10	½	25	QEF110	$1.15
QEE210	1.10	10	¾	25	QEF210	1.25
QEE310	1.20	10	1	25	QEF310	1.35
QEE120	1.45	20	½	25	QEF120	1.60
QEE220	1.55	20	¾	25	QEF220	1.70
QEE320	1.65	20	1	25	QEF320	1.80
QEE420	1.75	20	1¼	25	QEF420	1.90
QEE520	1.85	20	1½	25	QEF520	2.00
QEE620	2.50	20	2	25	....	....

Cadmium-galvanized is the standard finish.

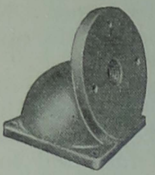
CROUSE-HINDS CONDULETS

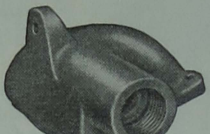
QE SERIES

Schedule CR

Take housings for plug receptacles.

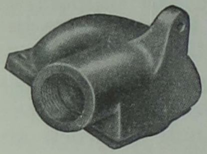
TYPES QEG AND QEK



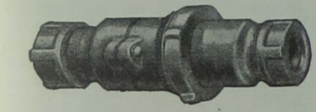


Type QEG		Size			Type QEK	
Cat. No.	Price Each	Form	Conduit	Std. Pkg.	Cat. No.	Price Each
QEG110	$1.20	10	½	25	QEK110	$1.00
QEG210	1.30	10	¾	25	QEK210	1.10
QEG310	1.40	10	1	25	QEK310	1.20
QEG120	1.70	20	½	25	QEK120	1.45
QEG220	1.80	20	¾	25	QEK220	1.55
QEG320	1.90	20	1	25	QEK320	1.65
QEG420	2.00	20	1¼	25	QEK420	1.75
QEG520	2.10	20	1½	25	QEK520	1.85

TYPES QEP AND QEA



Type QEP		Size			Type QEA	
Cat. No.	Price Each	Form	Conduit	Std. Pkg.	Cat. No.	Price Each
QEP110	$1.00	10	½	25	QEA110	$0.90
QEP210	1.10	10	¾	25	QEA210	1.00
QEP310	1.20	10	1	25	QEA310	1.10
QEP120	1.45	20	½	25	QEA120	1.30
QEP220	1.55	20	¾	25	QEA220	1.40
QEP320	1.65	20	1	25	QEA320	1.50
QEP420	1.75	20	1¼	25	QEA420	1.60
QEP520	1.85	20	1½	25	QEA520	1.70



TYPE BRC EXTENSION CABLE CONNECTORS†

With rubber bushing, (watertight). Cast aluminum.

30-Ampere, 250-Volt, A.C.*

Cat. No.	Pole	Diameter Cable	With Receptacle	Std. Pkg.	Price Each
BRC8432	2	.375 to .500	BR2302	10	$7.40
BRC8532	2	.500 to .625	BR2302	10	7.65
BRC8632	2	.625 to .750	BR2302	10	8.05
BRC8732	2	.750 to .875	BR2302	10	8.45
BRC8433	3	.375 to .500	BR2303	10	8.85
BRC8533	3	.500 to .625	BR2303	10	9.10
BRC8633	3	.625 to .750	BR2303	10	9.50
BRC8733	3	.750 to .875	BR2303	10	9.90
BRC8833	3	.875 to 1.000	BR2303	10	10.30
BRC8434	4	.375 to .500	BR2304	10	10.30
BRC8534	4	.500 to .625	BR2304	10	10.55
BRC8634	4	.625 to .750	BR2304	10	10.95
BRC8734	4	.750 to .875	BR2304	10	11.35
BRC8834	4	.875 to 1.000	BR2304	10	11.75

*Can be used on 25-ampere, 125-volt D.C. circuits; or on 30-ampere, 250-volt D.C. circuits if circuit is broken before plug is withdrawn.

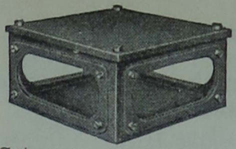
†For price of extension cable connector without plug, deduct price of corresponding watertight plug, listed on another page.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

RS SERIES JUNCTION CONDULETS

Schedule CR



RS series Condulets take conduit hub plates. Furnished with cast Feraloy cover and gaskets for cover and hub plates.

Cat. No.	Type	Approx. Inside Dimens., Inches	Std. Pkg.	Price Each
RS1	RS	8½x8½x4	10	$9.25
RSM1	RSM	8½x4½x4	10	7.85
RSS1	RSS	4½x4½x4	10	6.75

RSP SERIES CONDUIT HUB PLATES

For RS Series Condulets

Schedule CR

For 8½x4" sides of types RS and RSM Condulets. Approximate outside dimensions, 8$\frac{1}{16}$x3½". Capscrews and Gaskets furnished with Condulet.

ONE HUB

Cat. No.	Size† In.	Price Each	Cat. No.	Size† In.	Price Each
RSP1	½	$1.00	RSP5	1½	$1.20
RSP2	¾	1.05	RSP6	2	1.25
RSP3	1	1.10	RSP7	2½	1.40
RSP4	1¼	1.15	RSP8	3	1.65
---------	-------	-------	RSP9	3½	1.90

TWO HUBS

RSP11	½- ½	$1.10	RSP54	1½-1¼	$1.55
RSP22	¾- ¾	1.20	RSP55	1½-1½	1.55
RSP31	1 - ½	1.30	RSP62	2 - ¾	1.75
RSP33	1 -1	1.30	RSP63	2 -1	1.75
RSP42	1¼- ¾	1.40	RSP64	2 -1¼	1.75
RSP43	1¼-1	1.50	RSP65	2 -1½	1.75
RSP44	1¼-1¼	1.40	RSP66	2 -2	1.75
RSP52	1½- ¾	1.55	RSP73	2½-1	1.95
RSP53	1½-1	1.55	---------	-----	-------

THREE HUBS

Cat. No.	Size† In.	Price Each	Cat. No.	Size† In.	Price Each
RSP111	½-½-½	$1.20	RSP442	1¼-1¼- ¾	$1.65
RSP222	¾-¾-¾	1.35	RSP444	1¼-1¼-1¼	1.65
RSP331	1-1-½	1.50	RSP553	1½-1½-1	1.90
RSP333	1-1-1	1.50	RSP555	1½-1½-1½	1.90

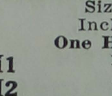
BLANK PLATE

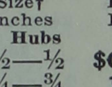
Cat. No.	Size, Inches	Price Each
RSP0	Blank	$0.95

RSMP SERIES CONDUIT HUB PLATES

Schedule CR

For 4½x4" sides of types RSM and RSS Condulets. Approximate outside dimensions: 3½x3½". Capscrews and gaskets furnished with Condulet.





Cat. No.	Size† Inches	Price Each	Cat. No.	Size† Inches	Price Each
	One Hub			Two Hubs	
RSM1	½	$0.50	RSMP11	½—½	$0.60
RSM2	¾	.55	RSMP22	¾—¾	1.70
RSM3	1	.60			
RSM4	1¼	.65		Blank Cover	
RSM5	1½	.70	RSMP0	-------	.45
RSM6	2	.75	-------------	-------	-------
RSM7	2½	.90	-------------	-------	-------

†Sizes are given from left to right.
Standard package assorted, 40.
Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

Schedule CR

FA SERIES SAFETY SWITCH CONDULETS

FA series Condulets are furnished with Crouse-Hinds tumbler switch, cover and gasket.

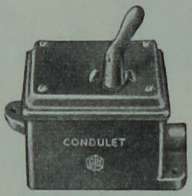
FA series Condulets with Crouse-Hinds tumbler switches are for use in industrial plants or wherever such switches would be subjected to unusually severe conditions.

The switches are enclosed in Condulets and are externally operated, affording the switch maximum protection from mechanical injury. There are five types of switches: two-pole, two-pole double-throw, three-way, four-way, and three-pole.

There are two types of covers furnished with FA series Condulets: watertight and non-watertight.

TYPE FA

With Guarded Cover

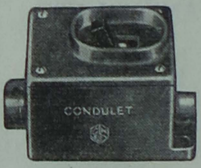


With Watertight Cover

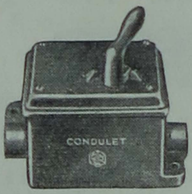
With Guarded or Watertight Covers

Size In.	Switch	Std. Pkg.	With Guarded Cover "On" and "Off" Cat. No.	With Guarded Cover "On" and "Off" Price Each	With Watertight Cover "On" and "Off" Cat. No.	With Watertight Cover "On" and "Off" Price Each
30-Amp., 250-Volt or 5-Amp., 600-Volt						
½	2-Pole	10	FA129	$6.25	FA128	$8.90
¾	2-Pole	10	FA229	6.35	FA228	9.00
1	2-Pole	10	FA329	6.45	FA328	9.10
20-Amp., 125-Volt or 10-Amp., 250-Volt						
½	3-Way	10	FA169	6.50	FA168	9.15
¾	3-Way	10	FA269	6.60	FA268	9.25
1	3-Way	10	FA369	6.70	FA368	9.35

TYPE FAC



With Guarded Cover



With Watertight Cover

With Guarded or Watertight Covers

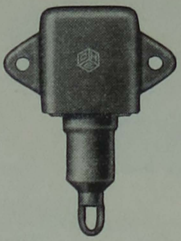
Size In.	Switch	Std. Pkg.	With Guarded Cover "On" and "Off" Cat. No.	With Guarded Cover "On" and "Off" Price Each	With Watertight Cover "On" and "Off" Cat. No.	With Watertight Cover "On" and "Off" Price Each
30-Amp., 250-Volt or 5-Amp., 600-Volt						
½	2-Pole	10	FAC129	$6.35	FAC128	$9.00
¾	2-Pole	10	FAC229	6.45	FAC228	9.10
1	2-Pole	10	FAC329	6.55	FAC328	9.20
20-Amp., 125-Volt or 10-Amp., 250-Volt						
½	3-Way	10	FAC169	6.60	FAC168	9.25
¾	3-Way	10	FAC269	6.70	FAC268	9.35
1	3-Way	10	FAC369	6.80	FAC368	9.45

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

Schedule CR

TYPES AF AND AFB MINE SIGNAL SWITCHES



Types AF and AFB are single-pole, double-make, quick-break, mine signal switches. Normal position of type AF is open; of type AFB, closed.

All insulating parts are of high-grade material. The switch is enclosed in a sturdy watershedding housing and is fastened to it by four cap screws. The wires enter through clearance holes in the flange on switch mechanism.

Cat. No. Type AF	Cat. No. Type AFB	Initial Pull Lbs.▲	Final Pull Lbs.*	Total Wt. of Pull Rope Lbs.†	Additional Pull Required Operate Switch	Price Each
AF7	AFB7	7	10	7-0	3 to 10	$10.00
AF10	AFB10	10	15	10-0	5 to 15	10.00
AF15	AFB15	15	25	15-0	10 to 25	10.00
AF25	AFB25	25	50	25-0	25 to 50	10.00

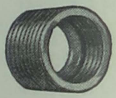
▲Or initial compression of spring. This is the weight of rope that the spring will support without movement. The weight of the moisture in the rope must be considered in estimating its weight.

*Or total pull necessary to compress the spring against its stop, including weight of pull-rope. The plunger moves about ½-inch between stops.

†Including moisture.

THREADED CONDULET REDUCERS

Schedule CR



Used to reduce Condulets from larger to smaller sizes. Cadmium-galvanized is the standard finish.

Cat. No.	Size In.	Std. Pkg.	List per 100	Cat. No.	Size In.	Std. Pkg.	List per 100
RE2818	¼ - ⅛	50	$15.00	RE53	1½-1	50	$32.95
RE3818	⅜ - ⅛	50	15.00	RE54	1½-1¼	50	32.95
RE3828	⅜ - ¼	50	15.00	RE61	2 - ½	25	46.15
RE1108	½ - ⅛	50	15.00	RE61	2 - ½	25	46.15
RE1208	½ - ¼	50	15.00	RE62	2 - ¾	25	46.15
RE1308	½ - ⅜	50	11.25	RE63	2 -1	25	46.15
RE21	¾ - ½	50	11.25	RE64	2 -1¼	25	46.15
RE31	1 - ½	50	14.90	RE65	2 -1½	25	46.15
RE32	1 - ¾	50	14.90	RE71	2½ - ½	25	92.25
RE41	1¼ - ½	50	22.50	RE72	2½ - ¾	25	92.25
RE42	1¼ - ¾	50	22.50	RE73	2½-1	25	92.25
RE43	1¼-1	50	22.50	RE74	2½-1¼	25	92.25
RE51	1½ - ½	50	32.95	RE75	2½-1½	25	92.25
RE52	1½ - ¾	50	32.95	RE76	2½-2	25	92.25

THREADLESS CONDULET REDUCERS

For Threadless Condulets

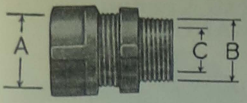
Schedule CR

Threadless Thick Wall Cat. No.	Threadless Thick Wall Std. Pkg.	Threadless Thick Wall List per 100	Size Inches	Threadless Thin Wall Cat. No.	Threadless Thin Wall Std. Pkg.	Threadless Thin Wall List per 100
RE291	50	$29.00	¾- ½	RE241	50	$29.00
RE391	50	38.00	1 - ½	RE341	50	38.00
RE392	50	43.00	1 - ¾	RE342	50	43.00
RE491	50	51.00	1¼- ½	RE441	50	51.00
RE492	50	54.00	1¼- ¾	RE442	50	54.00
RE493	50	58.00	1¼-1	RE443	50	58.00

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONNECTORS

Schedule CR



TYPE CGB CONNECTORS

Straight—Male Thread

A — Inside diameter in inches of rubber bushing or split lead sleeve which takes round flexible cord or cable, armored cable or flexible conduit.
B — Size in inches of Condulet hub with which connectors can be used.
C — Inside diameter of hole through nipple of connectors.

With Tapered Rubber Bushing

Schedule 1*—For Connecting Round Flexible Cord or Cable to Condulets, Outlet Boxes, Plug Handles, or Rigid Conduit. Cord or Cable WILL Pass Entirely Through the Connector Without Removing Outer Covering.

Cat. No.	Dimensions, Inches A	B	C	Std. Pkg.	Price Each
CGB3892	.125– .250	⅜	15/32	50	$0.65
CGB192	.125– .250	½	19/32	50	.65
CGB292	.125– .250	¾	11/16	50	.65
CGB3893	.250– .375	⅜	15/32	50	.65
CGB193	.250– .375	½	19/32	50	.65
CGB293	.250– .375	¾	11/16	50	.65
CGB194	.375– .500	½	19/32	50	.65
CGB294	.375– .500	¾	11/16	50	.65
CGB295	.500– .625	¾	11/16	50	.65
CGB395	.500– .625	1	15/16	50	1.00
CGB396	.625– .750	1	15/16	50	1.00

With Tapered Rubber Bushing

Schedule 2*—For Connecting Round Flexible Cord or Cable to Condulets, Outlet Boxes, or Rigid Conduit. Cord or Cable WILL NOT Pass Through the Connector Without Removing Outer Covering.

CGB195	.500– .625	½	½	50	$0.65
CGB196	.625– .750	½	½	50	1.00
CGB296	.625– .750	¾	11/16	50	1.00
CGB297	.750– .875	¾	11/16	25	1.00
CGB398	.875–1.000	1	29/32	25	1.45

With Tapered Split Lead Sleeve

Schedule 3*—For Connecting Armored Cable or Flexible Conduit to Condulets, Outlets Boxes, Plug Handles, or Rigid Conduit. Armored Cable or Flexible Cable WILL Pass Entirely Through the Connector.

CGB184	.375– .500	½	19/32	50	$0.65
CGB185	.500– .563	½	17/32	50	.65
CGB285	.500– .625	¾	11/16	50	.65
CGB386	.625– .781	1	15/16	50	1.00
CGB387	.781– .938	1	15/16	25	1.00
CGB489	.938–1.156	1¼	1 7/32	25	1.45
CGB589	.938–1.156	1½	1 7/16	25	1.45

With Tapered Split Lead Sleeve

Schedule 4*—For Connecting Armored Cable or Flexible Conduit to Condulets, Outlet Boxes, Plug Handles, or Rigid Conduit. Armored Cable or Flexible Conduit WILL NOT Pass Through the Connector Without Removing Outer Covering.

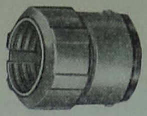
CGB186	.625– .781	½	½	50	$1.00
CGB286	.625– .781	¾	11/16	50	1.00
CGB187	.781– .938	½	½	25	1.00
CGB287	.781– .938	¾	11/16	25	1.00
CGB289	.938–1.156	¾	11/16	25	1.45
CGB389	.938–1.156	1	29/32	25	1.45

The smaller sizes of the above connectors are made of steel; larger sizes, of cast Feraloy.

*Use schedule numbers for identification of connectors when consulting Underwriters Laboratories', Inc., List of Inspected Electrical Equipment.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDUIT END BUSHINGS



TPYE UCE CONDUIT END BUSHINGS

Schedule CR

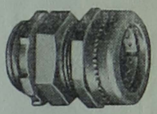
For bushing the end of threaded or threadless conduit.

Size	Std. Pkg.	Threaded Thick Wall Cat. No.	Threaded Thick Wall Price Each	Threadless Thick Wall Cat. No.	Threadless Thick Wall Price Each	Threadless Thin Wall Cat. No.	Threadless Thin Wall Price Each
½	100	UCE1	$0.25	UCE19	$0.35	UCE14	$0.35
¾	75	UCE2	.35	UCE29	.45	UCE24	.45
1	50	UCE3	.50	UCE39	.65	UCE34	.65
1¼	40	UCE4	.65	UCE49	.90	UCE44	.90
1½	20	UCE5	.90	UCE59	1.25	UCE54	1.25
2	15	UCE6	1.20	UCE69	1.80	UCE64	1.80
2½	10	UCE7	1.65	UCE79	2.55	....	....
3	5	UCE8	4.00	UCE89	5.15	....	....

CROUSE-HINDS CONNECTORS AND COUPLINGS

THREADLESS—THICK WALL

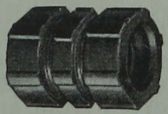
Schedule CM



TYPE UCA CONNECTORS

Regular Connectors

Cat. No.	Size In.	Std. Pkg.	Car-ton	Net Price per 100‡ Std. Pkg.	Net Price per 100‡ Ctn. Quan.	Net Price per 100‡ Less Carton
UCA1	½	100	50	....	....	....
UCA2	¾	50	25	....	....	....
UCA3	1	25	5	....	....	....
UCA4	1¼	25	5	....	....	....
UCA5	1½	10	2	....	....	....
UCA6	2	5	1	....	....	....
UCA7	2½	5	1	....	....	....



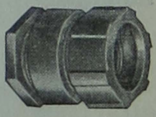
TYPE UCC COUPLINGS

For connecting threaded or threadless conduit.

Regular Couplings

Cat. No.	Size In.	Std. Pkg.	Car-ton	Net Price per 100‡ Std. Pkg.	Net Price per 100‡ Ctn. Quan.	Net Price per 100‡ Less Carton
UCC1	½	100	50	....	....	....
UCC2	¾	50	25	....	....	....
UCC3	1	25	5	....	....	....
UCC4	1¼	25	5	....	....	....
UCC5	1½	10	2	....	....	....
UCC6	2	5	1	....	....	....
UCC7	2½	5	1	....	....	....

TYPE UCB CONNECTORS



For connecting threadless conduit to outlet boxes, panel boxes, and switch boxes.

Cat. No.	Size In.	Std. Pkg.	Car-ton	Net Price per 100‡ Std. Pkg.	Net Price per 100‡ Ctn. Quan.	Net Price per 100‡ Less Carton
UCB1	½	100	50	....	....	....
UCB2	¾	50	25	....	....	....
UCB3	1	25	5	....	....	....
UCB4	1¼	25	5	....	....	....

‡Net prices and Schedule "CM" Terms, furnished on request.

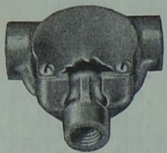
Cadmium-galvanized is the standard finish.

CROUSE-HINDS FLEXIBLE FIXTURE HANGERS

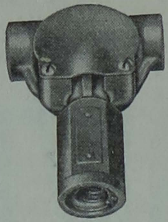
For Pendent Fixtures

Schedule CR

TYPE ALC—THREADED



Ball Type



Cushion Type

Type ALC Ball Hangers

Cat. No.	Wt. Fixture Lbs.	Size, In. Fixture Stem	Size, In. Conduit	Std. Pkg.	Price Each
ALC1	------------	½	½	25	$0.75
ALC21	------------	½	¾	25	.85
ALC31	------------	½	1	10	.95
ALC22	------------	¾	¾	25	.95
ALC32	------------	¾	1	10	1.05

Type ALC Cushion Hangers

Cat. No.	Wt. Fixture Lbs.	Size, In. Fixture Stem	Size, In. Conduit	Std. Pkg.	Price Each
ALC14	3 to 6	½	½	25	1.50
ALC214	3 to 6	½	¾	25	1.60
ALC314	3 to 6	½	1	10	1.70
ALC224	3 to 6	¾	¾	25	1.70
ALC324	3 to 6	¾	1	10	1.80
ALC18	6 to 12	½	½	25	1.50
ALC218	6 to 12	½	¾	25	1.60
ALC318	6 to 12	½	1	10	1.70
ALC228	6 to 12	¾	¾	25	1.70
ALC328	6 to 12	¾	1	10	1.80
ALC116	12 to 24	½	½	25	1.50
ALC2116	12 to 24	½	¾	25	1.60
ALC3116	12 to 24	½	1	10	1.70
ALC2216	12 to 24	¾	¾	25	1.70
ALC3216	12 to 24	¾	1	10	1.80

TYPES UNJ AND UNJC

Types UNJ and UNJC fixture hangers are for supporting pendent fixtures so that they will always hang plumb, even though supported from an inclined surface. The hangers can be used in conjunction with Condulets.

Type UNJC differs from type UNJ in that it is provided with a spring which carries the weight of the fixture and absorbs any shocks due to vibration or other causes.

TYPE UNJ BALL HANGERS

Cat. No.	Size, In. Stem	Size, In. Hub	Std. Pkg.	Price Each
UNJ1308	⅜	½	50	$0.65
UNJ1	½	½	50	.65
UNJ2308	⅜	¾	50	.75
UNJ21	½	¾	50	.75
UNJ2	¾	¾	50	.75

TYPE UNJC CUSHION HANGERS

Cat. No.	Size, In. Stem	Size, In. Hub	Fixture Wt. Lbs.	Std. Pkg.	Price Each
UNJC12	½	½	1½ to 3	25	$1.35
UNJC22	¾	¾		25	1.60
UNJC14	½	½	3 to 6	25	1.35
UNJC24	¾	¾		25	1.60
UNJC18	½	½	6 to 12	25	1.35
UNJC28	¾	¾		25	1.60
UNJC116	½	½	12 to 24	25	1.35
UNJC216	¾	¾		25	1.60
UNJC132	½	½	24 to 48	25	1.45
UNJC232	¾	¾		25	1.70

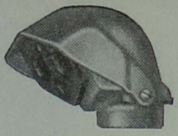
Cadmium-galvanized is the standard finish.

CROUSE-HINDS SERVICE ENTRANCE CONDUIT FITTINGS

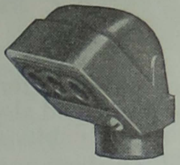
For Threaded Heavy Wall Conduit

TYPE F SERVICE ENTRANCE CAPS

Schedule CM



Form 8



Form 6

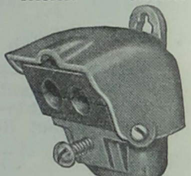
½ to 2-inch Service Entrance Caps are furnished with split composition cover with holes for 2-wire service, and knockouts for 3 or 4-wire service. One wire covers can be furnished if desired.

2½ to 4-inch Service Entrance Caps are furnished with composition cover for 2 or 3-wire service. 4-wire covers can be furnished at the same price.

Cat. No.	Size In.	Std. Pkg.	Carton	Net Price per 100‡ Std. Pkg.	Net Price per 100‡ Carton Quan.	Net Price per 100‡ Less Carton
			Form 8			
F184	½	50	5	-----	-------	-------
F284	¾	50	5	-----	-------	-------
F384	1	20	2	-----	-------	-------
F484	1¼	10	1	-----	-------	-------
F584	1½	5	1	-----	-------	-------
F684	2	5	1	-----	-------	-------
			Form 6			
F763	2½	1	1	-----	-------	-------
F863	3	1	1	-----	-------	-------
F963	3½	1	1	-----	-------	-------
F1063	4	1	1	-----	-------	-------

TYPE FEE SERVICE ENTRANCE CAPS

Schedule CM



Caps for 3-conductor oval or 2-conductor round bare neutral service entrance concentric cable. Cast aluminum.

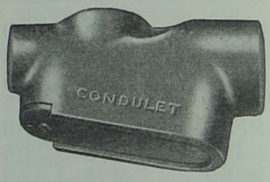
Cat. No.	*Max. Dimen. of Cable, Inches Oval	*Max. Dimen. of Cable, Inches Round	†Dimensions of Cable, Inches Oval	†Dimensions of Cable, Inches Round	†Dimensions of Cable, Inches Min.	Std. Pkg.	Carton	Per 100‡
FEE8	.594x .781	.594	.531x .718	.531	.250	50	5	-------
FEE4	.750x1.000	.750	.687x .937	.687	.375	50	5	-------
FEE2	.844x1.281	.844	.750x1.187	.750	.500	5	2	-------

*Over insulation. †Over armor or concentric bare neutral after removing outer insulation.

TYPE LB ELBOWS AND TYPE LBC TEES

Form 6 — Schedule CM

Type LB Service Entrance Elbows



Type LBC Service Entrance Tees (For Driven Grounds)

Furnished with Blank Cast Feraloy Cover with Break Neck Locking Screw.

Type LB Service Entrance Elbows

Cat. No.	Size In.	Std. Pkg.	Carton	Net Price per 100‡ Std. Pkg.	Net Price per 100‡ Carton Quan.	Net Price per 100‡ Less Carton
LB16	½	50	5	-----	-------	-------
LB26	¾	50	5	-----	-------	-------
LB36	1	25	5	-----	-------	-------
LB46	1¼	10	5	-----	-------	-------
LB56	1½	5	1	-----	-------	-------
LB666	2	1	1	-----	-------	-------
LB76	2½	1	1	-----	-------	-------

Type LBC Service Entrance Tees

Cat. No.	Size In.	Std. Pkg.	Carton	Net Price per 100‡ Std. Pkg.	Net Price per 100‡ Carton Quan.	Net Price per 100‡ Less Carton
LBC216	¾	25	10	-----	-------	-------
LBC316	1	25	10	-----	-------	-------
LBC416	1¼	10	5	-----	-------	-------

‡Net prices and Schedule "CM" Terms, furnished on request.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

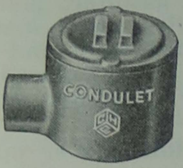
GUA SERIES JUNCTION CONDULETS

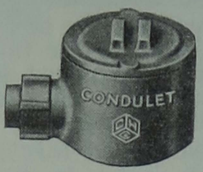
Explosion-Proof and Dust-Tight

Schedule CE

Condulets of the GUA series are furnished with surface covers, but can be furnished without covers or with flush, sealing, or nipple covers, or fixture canopies.

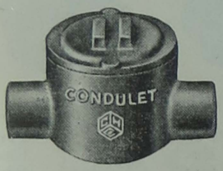
TYPE GUA

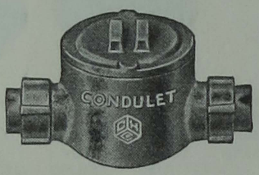




With Threaded Hubs			Diam.	Outside		With Union Hubs	
Cat. No.	Price Each	Size In.	Cover Opening	Dimens. of Body Dia.	Dpth.	Cat. No.	Price Each
GUA14	**$1.45**	½	2	2½	1¾	....	....
....	....	½	2	2½	$1\frac{15}{16}$	**GUA645**	**$1.80**
GUA24	**1.50**	¾	2	2½	$1\frac{15}{16}$	**GUA745**	**1.80**
GUA16	**1.80**	½	3	3½	$1\frac{15}{16}$	....	....
GUA26	**1.85**	¾	3	3½	$1\frac{15}{16}$	**GUA765**	**2.15**
GUA36	**1.90**	1	3	3½	2¼	**GUA865**	**2.40**
GUA47	**3.15**	1¼	3⅝	4¼	2⅝	....	....

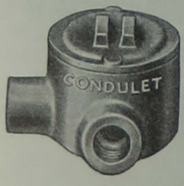
TYPE GUAC

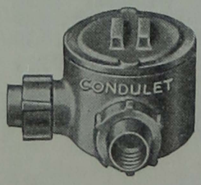




With Threaded Hubs			Diam.	Outside		With Union Hubs	
Cat. No.	Price Each	Size In.	Cover Opening	Dimens. of Body Dia.	Dpth.	Cat. No.	Price Each
GUAC14	**$1.55**	½	2	2½	1¾	....	....
....	....	½	2	2½	$1\frac{15}{16}$	**GUAC645**	**$2.25**
GUAC24	**1.65**	¾	2	2½	$1\frac{15}{16}$	**GUAC745**	**2.25**
GUAC16	**1.90**	½	3	3½	$1\frac{15}{16}$	....	....
GUAC26	**2.00**	¾	3	3½	$1\frac{15}{16}$	**GUAC765**	**2.60**
GUAC36	**2.10**	1	3	3½	2¼	**GUAC865**	**3.10**
GUAC47	**3.40**	1¼	3⅝	4¼	2⅝	....	....

TYPE GUAL





With Threaded Hubs			Diam.	Outside		With Union Hubs	
Cat. No.	Price Each	Size In.	Cover Opening	Dimens. of Body Dia.	Dpth.	Cat. No.	Price Each
GUAL14	**$1.55**	½	2	2½	1¾	....	....
....	....	½	2	2½	$1\frac{15}{16}$	**GUAL645**	**$2.25**
GUAL24	**1.65**	¾	2	2½	$1\frac{15}{16}$	**GUAL745**	**2.25**
GUAL26	**2.00**	¾	3	3½	2¼	....	....
GUAL36	**2.10**	1	3	3½	2¼	**GUAL865**	**3.10**
GUAL47	**3.40**	1¼	3⅝	4¼	2⅝	....	....

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

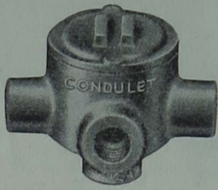
GUA SERIES JUNCTION CONDULETS

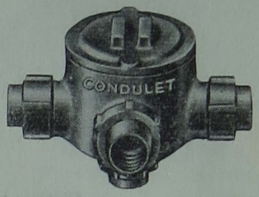
Explosion-Proof and Dust-Tight

Schedule CE

Condulets of the GUA series are furnished with surface covers, but can be furnished without covers or with flush, sealing, or nipple covers, or fixture canopies.

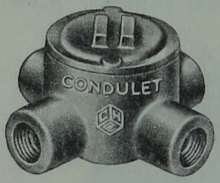
TYPE GUAW

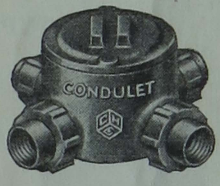




With Threaded Hubs			Diam.	Outside		With Union Hubs	
Cat. No.	Price Each	Size In.	Cover Opening	Dimens. of Body Dia.	Dpth.	Cat. No.	Price Each
GUAW14	**$1.75**	½	2	2½	1¾	....	....
....	....	½	2	2½	$1\frac{15}{16}$	**GUAW645**	**$3.15**
GUAW24	**1.95**	¾	2	2½	$1\frac{15}{16}$	**GUAW745**	**3.15**
GUAW16	**2.10**	½	3	3½	$1\frac{15}{16}$	**GUAW665**	**3.50**
GUAW26	**2.30**	¾	3	3½	$1\frac{15}{16}$	**GUAW765**	**3.50**

TYPE GUAX



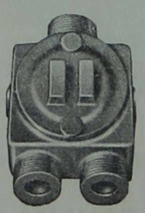


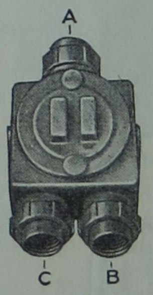
With Threaded Hubs			Diam.	Outside		With Union Hubs	
Cat. No.	Price Each	Size In.	Cover Opening	Dimens. of Body Dia.	Dpth.	Cat. No.	Price Each
GUAX14	**$1.75**	½	2	2½	1¾	....	....
....	....	½	2	2½	$1\frac{15}{16}$	**GUAX645**	**$3.15**
GUAX24	**1.95**	¾	2	2½	$1\frac{15}{16}$	**GUAX745**	**3.15**
GUAX16	**2.10**	½	3	3½	$1\frac{15}{16}$	**GUAX665**	**3.50**
GUAX26	**2.30**	¾	3	3½	$1\frac{15}{16}$	**GUAX765**	**3.50**
GUAX37	**3.70**	1	3⅝	4¼	2¼	**GUAX875**	**5.70**
GUAX49	**7.50**	1¼	5	5⅝	2⅝	....	....
....	....	1¼	5	5⅝	3	**GUAX995**	**12.50**

WITH UNION HUBS

Furnished with surface covers. These Condulets can be furnished with additonal hubs on the sides or in the back at an additional price per hub.

TYPE GUAG





Hub Sizes	Without Nuts and Sleeves		With Nuts and Sleeves	
A—B—C	Cat. No.	Price Each	Cat. No.	Price Each
½-½-½	**GUAG706**	**$2.75**	**GUAG6665**	**$3.50**
¾-¾-¾			**GUAG7775**	**3.50**
½-¾-¾			**GUAG6775**	**3.50**
¾-½-½			**GUAG7665**	**3.50**
½-¾-½			**GUAG6765**	**3.50**

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

GUA SERIES JUNCTION CONDULETS

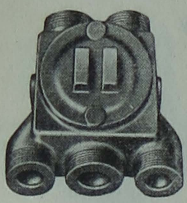
With Union Hubs

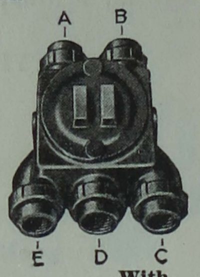
Explosion-Proof and Dust-Tight

Schedule CE

Furnished with surface covers. These Condulets can be furnished with additional hubs on the sides or in the back at an additional price per hub.

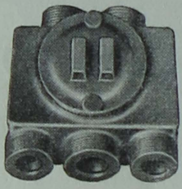
TYPE GUAP

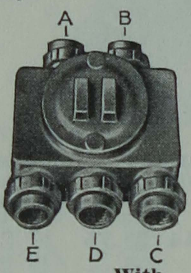




Hub Sizes A-B-C-D-E	Without Nuts and Sleeves Cat. No.	Without Nuts and Sleeves Price Each	With Nuts and Sleeves Cat. No.	With Nuts and Sleeves Price Each
½-½-½-¾-½			GUAP666765	$4.40
½-½-½-1-½			GUAP666865	4.40
½-½-¾-¾-¾			GUAP667775	4.40
½-½-¾-1-¾	GUAP706*	$3.15	GUAP667875	4.40
¾-¾-¾-¾-¾			GUAP777775	4.40
¾-¾-¾-1-¾			GUAP777875	4.40
½-½-1-1-1	GUAP7806‡	3.35	GUAP668885	4.90
¾-¾-1-1-1			GUAP778885	4.90

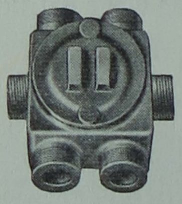
TYPE GUAQ

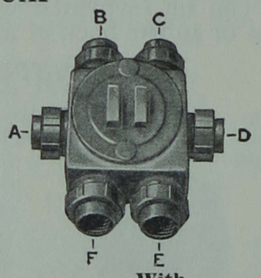




Hub Sizes A-B-C-D-E	Without Nuts and Sleeves Cat. No.	Without Nuts and Sleeves Price Each	With Nuts and Sleeves Cat. No.	With Nuts and Sleeves Price Each
½-½-½-¾-½			GUAQ666765	$4.95
½-½-½-1-½			GUAQ666865	4.95
½-½-¾-¾-¾	GUAQ706*	$3.70	GUAQ667775	4.95
½-½-¾-1-¾			GUAQ667875	4.95
¾-¾-¾-¾-¾			GUAQ777775	4.95
¾-¾-¾-1-¾			GUAQ777875	4.95

TYPE GUAF





Hub Sizes A-B-C-D-E-F	Without Nuts and Sleeves Cat. No.	Without Nuts and Sleeves Price Each	With Nuts and Sleeves Cat. No.	With Nuts and Sleeves Price Each
½-½-½-½-½-½			GUAF6666665	$5.40
½-¾-¾-½-¾-¾			GUAF6776775	5.40
½-½-½-½-¾-¾	GUAF706	$3.90	GUAF6666775	5.40
¾-¾-¾-¾-¾-¾			GUAF7777775	5.40
¾-½-½-¾-½-½			GUAF7667665	5.40
¾-½-½-¾-¾-¾			GUAF7667775	5.40

*The D hub for GUAP706 and GUAQ706 requires the use of 1-inch nut for ½, ¾ and 1-inch sleeve.

‡The C, D, and E hubs for GUAP7806 require the use of a 1-inch nut for ½, ¾, and 1-inch sleeve.

Outside dimensions of body: Length, 3¾ inches; depth, 1 15/16 inches at corners, 3⅛ inches over covers; normal diameter of cover opening, 3 inches. Width, 3¾ inches.

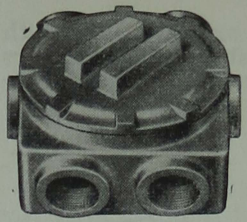
Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

TYPE GUP JUNCTION CONDULETS

Schedule CE

Explosion-Proof and Dust-Tight



Type GUP Condulets are especially suitable for gasoline pump installations that are to be rewired to comply with the new inspection requirements for hazardous locations.

Because of congested space in many gasoline pumps, and because this box must usually replace a steel knockout box, the thickness of the walls and the length of threaded hubs have been reduced to the minimum consistent with requirements for hazardous locations.

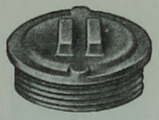
Hubs tapped for ¾-inch conduit. Cover opening, 3⅝ inches in diameter.

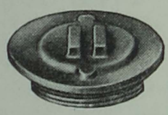
2 in Top—1 in Each Side 2 in Bottom—None in Back Cat. No.	Hubs	Price Each	2 in Top—1 in Each Side 2 in Bottom—4 in Back Cat. No.	Hubs	Price Each
GUP215	6	$2.70	GUP214	10	$2.90

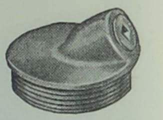
Dimensions of body, exclusive of hubs: Length, 4⅛ inches; width, 4⅛ inches; depth, 2½ inches.

THREADED COVERS, CANOPIES AND ADAPTER

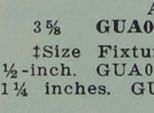
For GUA Series Condulets

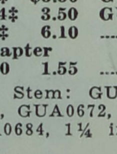


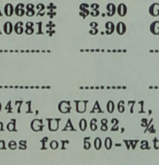


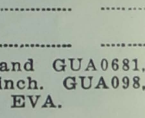


Diam. Cover Opening	Surface Covers Cat. No.	Surface Covers Price Each	Flush Covers Cat. No.	Flush Covers Price Each	Sealing Covers Cat. No.	Sealing Covers Price Each
2	GUA04	$0.65	GUA049	$0.65	GUA041	$0.80
3	GUA06	.75	GUA069	.75	GUA062	1.00
3⅝	GUA07	1.10	GUA079	1.10	GUA072	1.30
5	GUA09	3.35	GUA099	3.35	GUA092	3.75


GUA0760


GUA068


GUA0682

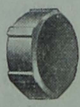

GUA0471

Diam. Cover Opening	Fixture Canopies Cat. No.	Fixture Canopies Price Each	Fixture Covers Cat. No.	Fixture Covers Price Each	Nipple Covers Cat. No.	Nipple Covers Price Each
2	....	....	....	....	GUA0471‡	$1.20
3	GUA068‡	$3.50	GUA0682‡	$3.90	GUA0671‡	1.55
3	GUA0684‡	3.50	GUA0681‡	3.90	GUA0672‡	1.75
5	GUA098‡	6.10	....	....	....	....
	Adapter					
3⅝	GUA0760	1.55	....	....	....	....

‡Size Fixture Stem: GUA0471, GUA0671, and GUA0681, ½-inch. GUA068, GUA0672, and GUA0682, ¾-inch. GUA098, 1¼ inches. GUA0684, 1¼ inches for 500-watt EVA.

BLANK CAPS

For GUA Series Condulets Without Nuts and Sleeves



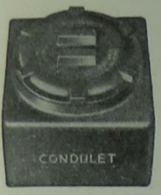
Cat. No.	Size In.	Description	Price Each
GUH20	¾	Threaded.................	$0.15
GUH30	1	Threaded.................	.20

Outside dimensions of body: Length, 3¾ inches; depth, 1 15/16 inches at corners, 3⅛ inches over covers; nominal diameter of cover opening, 3 inches. Width—type GUAQ, 5⅝ inches; all other types, 3¾ inches.

Cadmium-galvanized is the standard finish.

TYPES GU, GUE, GUEC, AND GUB JUNCTION CONDULETS

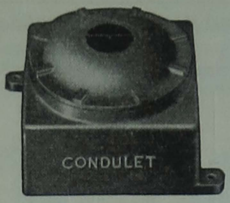
EXPLOSION-PROOF AND DUST-TIGHT



Type GU
4⅛ x 4⅛ x 3³⁄₁₆ Inches
3⅝-Inch Cover Opening

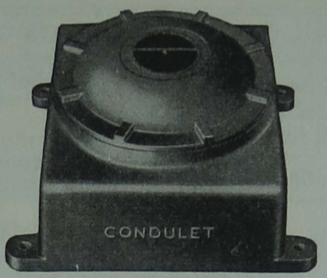
Type GUE
4⅝ x 4⅝ x 4¼ Inches
3⅝-Inch Cover Opening

Type GUEC
4⅝ x 4⅝ x 3⅝ Inches
3⅝-Inch Cover Opening

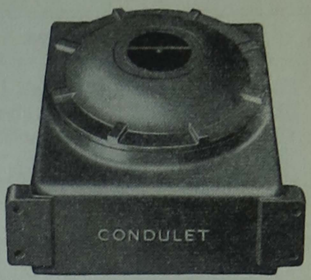


Type GUB01
6½ x 7 x 5½ Inches
5½-Inch Cover Opening

Type GUB02
8 x 10 x 5½ Inches
7-Inch Cover Opening



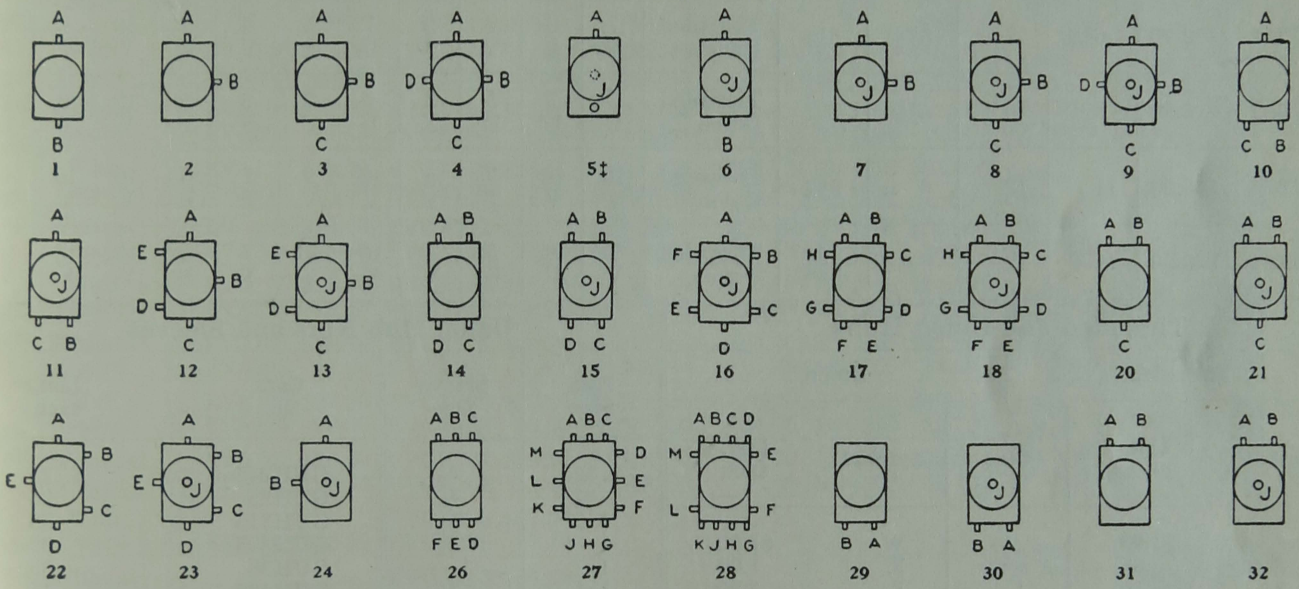
Type GUB03
11 x 12 x 9 Inches
9⅝-Inch Cover Opening



Type GUB04
11 x 12 x 9 Inches
9⅝-Inch Cover Opening

Dimensions are given in the following order: Width x Length x Depth. Depth includes cover, except for type GUEC.

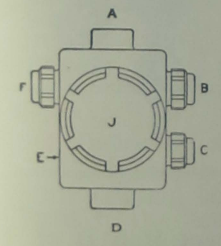
Hub Arrangements


A B 1
A B 2
A B C 3
A D B C 4
A J 5‡
A J B 6
A J B 7
A J B C 8
A D J B C 9
A C B 10
A J C B 11
A E B D C 12
A E J B D C 13
A B D C 14
A B J D C 15
A F J B E C D 16
A B H C G D F E 17
A B H J C G D F E 18
A B C 20
A B J C 21
A B E C D 22
A B E J C D 23
A B J 24
A B C F E D 26
A B C M D L E K F J H G 27
A B C D M E L F K J H G 28
B A 29
J B A 30
A B 31
A B J 32

For other hub arrangements, send sketch and complete description

The Condulets illustrated above provide explosion-proof and dust-tight utility junction boxes with welded hubs to meet requirements for special hub combinations. Types GU and GUE Condulets are blind tapped to take CB connection block.

The catalog numbers and list prices are made up as follows: Refer to the illustrations above and hub listings and select the size and hub arrangement of Condulet desired. The first division of the catalog numbers for types GU, GUE, and GUEC will be the type letters only; for type GUB, the type letters followed by the form figures. The second division of the catalog number will be the hub arrangement figure as selected for the particular arrangement of hubs desired. The third division of the catalog number is made up of the hub symbol numbers for each hub in rotation as indicated on the sketch of hub arrangement. Any hub may be omitted by using a zero (0) in the proper position in the catalog number. The divisions of the catalog number are separated by dashes.



Example: (See illustration at left) "A" is to be a 2-inch threaded hub; "B", a 1¼-inch union hub; "C", a 1-inch union hub; "D", a 2-inch threaded hub; "E", blank; "F", a 1¼-inch union hub; "J", blank. The hub arrangement selected is number 16 and the size of Condulet, GUB02. The catalog number will be as follows:

First Division	Second Division	Third Division
GUB02	16	6RQ60R0

Catalog Number, GUB02–16–6RQ60R0

The list price is determined in the following manner:

Type GUB02 body and cover *without hubs*	$18.50
"A" hub, 2-inch threaded, Symbol 6 . .	1.50
"B" hub, 1¼-inch union, Symbol R . .	1.75
"C" hub, 1-inch union, Symbol Q . . .	1.20
"D" hub, 2-inch threaded, Symbol 6 . .	1.50
"E" hub, blank, Symbol 0	.00
"F" hub, 1¼-inch union, Symbol R . .	1.75
"J" hub, blank, Symbol 0	.00
Total list price of unit	$26.20

Condulets listed on following page can be made weatherproof by use of vellumoid gaskets under the flange of threaded cover. Prices on application.

‡In hub arrangement number 5, back hub "J" is in center of types GU, GUE, and GUEC, and near bottom of types GUB01, GUB02, and GUB03.

TYPES GU, GUE, GUEC, AND GUB JUNCTION CONDULETS WITHOUT HUBS

EXPLOSION-PROOF AND DUST-TIGHT

Schedule CE

Types GU, GUE, GUEC, and GUB Condulets take Threaded or Union Hubs

First Division of Cat. No.	List Price, each	Overall Dimensions in Inches of Body including Cover			Dia. of Cover Opening	Symbol Numbers and Letters for Maximum Size Hubs that can be Used										
						Number of Hubs	On Top and Bottom				On Each Side				On Back		
		Width	Length	Depth			1	2	3	4	1	2	3	4	1	2	4
GU	$ 2.00	4⅛	4⅛	3 3/16	3⅝	Threaded	4	4	1	—	4	4	1	—	4	4	4
						Union	Y	Y	—	—	Y	Y	—	—	R	Y	Y
GUE	$ 2.00	4⅝	4⅝	4¼	3⅝	Threaded	6	5	2	—	6	5	2	—	4	5	5
						Union	T	R	W	—	T	R	W	—	R	R	R
GUEC	$ 2.00	4⅝	4⅝	3⅝¶	3⅝	Threaded	3	3	2	—	3	3	2	—	4	5	5
						Union	Y	Y	W	—	Y	Y	W	—	R	R	R
GUB01	$12.70	6½	7	5½	5½	Threaded	7	6	4	2	7	6	4	2	10	7	6
						Union	U	S	Y	W	U	S	Y	W	V	T	S
GUB02	$18.50	8	10	5½	7	Threaded	7	7	5	3	7	7	6	5	10	9	7
						Union	U	U	R	X	U	U	S	Y	V	V	U
GUB03	$40.00	11	12	9	9⅝	Threaded	10	10	7	5	10	9	7	5	10	10	9
						Union	V	V	T	Y	V	V	T	R	V	V	V
GUB04	$40.00	11	12	9	9⅝	Threaded	10	8	5	4	10	10	7	5	10	10	10
						Union	V	U	S	Y	V	V	T	S	V	V	V

Threaded and Union Hubs

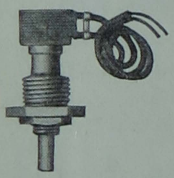
Threaded		Union		
Symbol	List, each	Size	Symbol	List, each
1	$ .60	½	W	$1.00
2	.65	¾	X	1.00
3	.75	1	Y	1.20
4	.90	1¼	R	1.75
5	1.15	1½	S	3.00
6	1.50	2	T	4.00
7	2.25	2½	U	5.50
8	3.25	3	V	7.00
9	4.50	3½	WD	9.00
10	6.00	4	XD	11.00

Union Hub Nuts and Sleeves

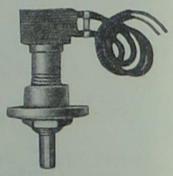
Nut Size	Sleeve Size	Cat. No.	List, each
¾	½	GUH215	$ .25
¾	¾	GUH25	.25
1	½	GUH315	.35
1	¾	GUH325	.35
1	1	GUH35	.35
1¼	¾	GUH425	.75
1¼	1¼	GUH45	.75
1½	¾	GUH525	1.25
1½	1½	GUH55	1.25
2	1	GUH635	2.25
2	2	GUH65	2.25
2½	2½	GUH75	3.25
3	3	GUH85	4.25

Type SWH Switches for Condulets

Explosion-Proof and Dust-Tight



For Threaded Hubs		3-A., 250-Volt D. C. or A. C.§		For Union Hubs	
Cat. No.	List, each	Type	Size	Cat. No.	List, each
SWH13	$1.40	SWH★★ Switches	½	SWH25‡	$1.65
SWH23	1.40		¾		



¶Depth of body only.

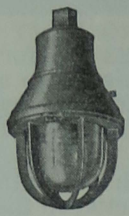
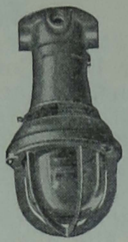
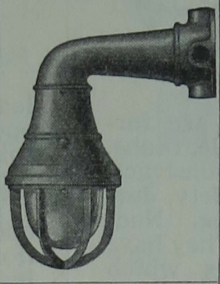
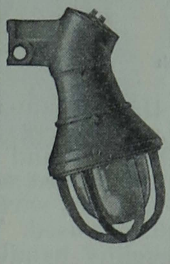
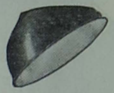
‡Can be used on any Condulet with ½ or ¾-inch union hub listed in this section, except Hub D of types GUAP and GUAQ.

§Not over 300 watts, 115 volts, for gas filled (type C) lamps. **To facilitate easier operation of switch, an hexagonal button can be furnished at an advance of $0.20 in the list prices; add suffix "S3" to the catalog number. Can also be furnished with attachment for rod operation, if specified on order, at an advance of $0.25 in the list price.

CROUSE-HINDS EV SERIES LIGHTING FIXTURE CONDULETS

EXPLOSION-PROOF — CLASS I, GROUPS C AND D

Schedule R

Type			EVA Pendent Type		EVCX Ceiling Type		EVBX Bracket Type		EVJ Bulkhead Type		Reflectors			
Description											 Dome Shallow		 Deep  30° Angle	
Size Lamp	Style	Size	Cat. No.	List, each	Cat. No.	List, each	Cat. No.	List, each	Cat. No.	List, each	Style	Dia.	Cat. No.	List, each
60-Watt	With Guard	½	EVA140	$13.00	EVCX140	$17.20	EVBX140	$19.20	EVJ140	$16.35	Dome	10¼	EV481	$2.50
		¾	EVA240	13.10	EVCX240	17.50	EVBX240	19.50	EVJ240	16.65	Deep	8¼	EV483	2.75
	Without Guard	½	EVA104	$12.25	EVCX104	$16.45	EVBX104	$18.45	EVJ104	$15.60	Shallow	10¼	EV485	2.25
		¾	EVA204	12.35	EVCX204	16.75	EVBX204	18.75	EVJ204	15.90	30°Angle	8¼	EV487	2.75
100-Watt	With Guard	½	EVA110	$19.40	EVCX110	$23.70	EVBX110	$25.70	EVJ110	$24.80	Dome	12⅛	EV181	$2.75
		¾	EVA210	19.50	EVCX210	24.00	EVBX210	26.00	EVJ210	25.00	Deep	9¼	EV183	3.00
	Without Guard	½	EVA101	$18.40	EVCX101	$22.70	EVBX101	$24.70	EVJ101	$23.80	Shallow	12⅛	EV185	2.50
		¾	EVA201	18.50	EVCX201	23.00	EVBX201	25.00	EVJ201	24.00	30°Angle	10¼	EV187	3.00
150-Watt	With Guard	½	EVA115	$19.40	EVCX115	$23.70	EVBX115	$25.70	EVJ115	$24.80	Dome	13¾	EV581	$3.25
		¾	EVA215	19.50	EVCX215	24.00	EVBX215	26.00	EVJ215	25.00	Deep	10¼	EV583	3.50
	Without Guard	½	EVA105	$18.40	EVCX105	$22.70	EVBX105	$24.70	EVJ105	$23.80	Shallow	13¾	EV585	3.00
		¾	EVA205	18.50	EVCX205	23.00	EVBX205	25.00	EVJ205	24.00	30°Angle	12⅛	EV587	3.50
200-Watt	With Guard	½	EVA120	$27.90	EVCX120	$32.20	EVBX120	$34.20	EVJ120	$33.50	Dome	16¹⁄₁₆	EV281	$3.75
		¾	EVA220	28.00	EVCX220	32.50	EVBX220	34.50	EVJ220	33.70	Deep★	12⅛	EV283	4.00
	Without Guard	½	EVA102	$26.40	EVCX102	$30.70	EVBX102	$32.70	EVJ102	$32.00	Shallow	16¹⁄₁₆	EV285	3.50
		¾	EVA202	26.50	EVCX202	31.00	EVBX202	33.00	EVJ202	32.20	30°Angle★	13¾	EV287	4.50
300-Watt	With Guard	½	....		EVCX136	$67.00	....		....					
		¾	EVA230	$62.50	EVCX236	67.10	....		....		Dome	20⁷⁄₁₆	EV381	$6.50
	Without Guard	½	....		EVCX163	$61.25	....		....		30°Angle	16¹⁄₁₆	EV387	4.50
		¾	EVA203	$56.75	EVCX263	61.35	....		....					
500-Watt	With Guard	½	....		EVCX150	$78.00	....		....					
		¾	....		EVCX250	78.10	....		....					
		1¼	EVA450	$73.50	....		....		....		Dome	20½	EV681	$6.50
	Without Guard	½	....		EVCX106	$73.70	....		....					
		¾	....		EVCX206	73.80	....		....					
		1¼	EVA406	$69.20	....		....		....					

Overall Dimensions

Cat. No.	Length	Width	Cat. No.	Length	Width	Cat. No.	Length	Width	Cat. No.	Length	Width
EVA210	12⁷⁄₁₆	6⅞	EVBX210	15	12¼	EVCX210	12⅛	6⅞	EVJ210	13¾	9
EVA215	12¹⁵⁄₁₆	7⅛	EVBX215	15⅝	12⅜	EVCX215	13	7⅛	EVJ215	14¼	9¼
EVA220	14⁹⁄₁₆	8½	EVBX220	17⅛	13	EVCX220	14¹¹⁄₃₂	8½	EVJ220	15⅞	10⅛
EVA230	17¹⁄₁₆	10	EVBX240	13	11⅝	EVCX236	16¼	10	EVJ240	11⅞	8⅛
EVA240	10⅜	5¾				EVCX240	10⁹⁄₁₆	5¾			
EVA450	17¾	14				EVCX250	17⁵⁄₁₆	14			

Reflectors are porcelain enameled steel, green outside and white inside.

If specified on the order, 300-watt EV series lighting fixture Condulets can be furnished equipped with a Mogul base 3-contact receptacle for 2-filament lamps. Add Suffix S4 to the catalog number and **$1.25** to the list price.

If specified on the order, EV series lighting fixture Condulets can be furnished with "inside frosted" globes. Add Suffix S10 to the catalog number and **$1.50** to the list price.

If specified on the order, 60 to 200-watt inclusive EV series lighting fixture Condulets can be furnished equipped with aluminum half shades having etched Alzak finish. Add Suffix S130 to the catalog number and **$2.25** to the list price of 60, 100, 150-watt and **$2.50** to the list price of 200-watt sizes.

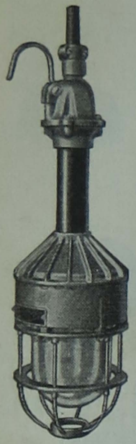
★200-watt types EVBX and EVJ fixtures take deep bowl and 30° angle reflectors only.

CROUSE-HINDS CONDULETS

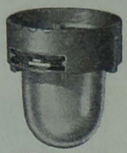
TYPE EVH HAND LAMPS

Explosion-Proof—Class I, Group D*

Schedule R



Type EVH



Globe with Holder

Guard

The EVH Hand Lamps are furnished with Lamp Receptacle, Globe, and Guard. Designed and constructed to provide the utmost safety, durability, and ease of wiring. Non-sparking metals are used. They have laminated bakelite handles which provide a cool grip. The handle is firmly secured to the cast aluminum body, in which is mounted a keyless, composition lamp receptacle. Cast aluminum globe holder; clear Pyrex globe.

40-Watt—Takes 25 or 40-Watt Lamps

Cat. No.	Description	Dia. Cord	Price Each
EVH40M3	EVH Hand Lamp	.375 to .625	**$22.00**
EVH5	Globes‡ (Clear) with Holder		**8.30**
....	Credit for Holder		**4.00**
....	Difference (replacement)........		**4.30**
EVH084M3	Guard		**2.75**

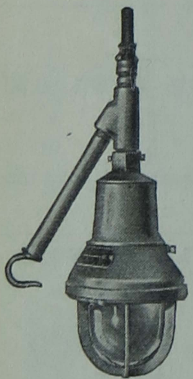
100-Watt—Takes 50, 60, 75 or 100-Watt Lamps

Cat. No.	Description	Dia. Cord	Price Each
EVH100	EVH Hand Lamp	.375 to .625	**$45.00**
EVH10	Globes‡ (Clear) with Holder		**12.00**
....	Credit for Holder		**6.50**
....	Difference (replacement)........		**5.50**
EVH087	Guard		**3.50**

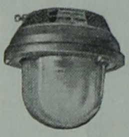
TYPE EVS PORTABLE LAMPS

Explosion-Proof—Class I, Group D

Schedule R



Type EVS



Globe with Holder

Type EVS Portable Lamps are furnished with Lamp Receptacle, Globe, and Guard. They are of the same construction as the type EVA fixtures, with a handle assembly added.

The handle assembly includes a hook and a substantial cable clamp. A third terminal is provided in type EVS for connection to a third wire in the portable cord for grounding the non-current-carrying metal parts of the entire unit.

Diameter cable, .250 to .625.

EVS Portable Lamps			Globes & Holders		Replacement	
Watts	Cat. No.	Price Each	Cat. No.	Price Each	Cr. for Holder	Difference†
100	**EVS80**	**$23.00**	**EV710‡**	**$12.00**	**$6.50**	**$5.50**
150	**EVS81**	**23.00**	**EV715‡**	**12.00**	**6.50**	**5.50**
200	**EVS82**	**32.00**	**EV720‡**	**20.00**	**10.00**	**10.00**

†Cost of globe replacement.

‡**Globes** must be assembled in the threaded holder at the factory. Order Globe with Holder by catalog number. Invoice will be issued for "Globe with Holder;" and upon receipt of the old globe holder in good condition at Syracuse, charges prepaid, with or without broken globe, a credit memorandum for the holder will be issued.

*EVH40M3 is also dust-tight: Class II, Group G, and Classes III and IV.

CROUSE-HINDS CONDULETS

TYPE ESC JUNCTION CONDULETS

Explosion-Proof and Dust-Tight

Schedule CE

FOR PULLING IN OR SPLICING CONDUCTORS

Class I, Group D; and Classes II, III, and IV

Type ESC Condulets are for use in hazardous locations, and are designed to afford a convenient opening in the conduit system for pulling in or splicing conductors. They have threaded hubs for rigid conduit.

The body is cylindrical with a long and wide opening in the front between the threaded end portions. The cover is a cylinder, threaded on the inside at each end, which screws onto the threaded portions of the body, and is retained in position by snap rings that fit into grooves in the body at the outer ends of the threaded portions.

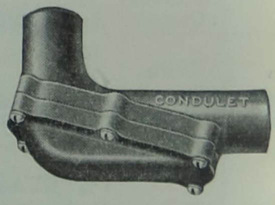
	Overall Length, In.			
Cat. No.	Condulet Pulled Open	Opening Only	Size Hub	List, Each
ESC1	16	6	½	**$ 5.50**
ESC2	16	6	¾	**5.50**
ESC3	23	10	1	**10.25**
ESC4	23	10	1¼	**10.25**
ESC5	37	16	1½	**19.50**
ESC6	37	16	2	**19.50**
ESC7	53	24	2½	**30.00**
ESC8	53	24	3	**30.00**
ESC9	81	38	3½	**65.00**
ESC10	81	38	4	**65.00**

TYPE LBH CONDULETS FOR PULLING CABLES

Explosion-Proof and Dust-Tight

Schedule CE

Class I, Groups C and D; and Classes II, III, and IV



Furnished with blank cast Feraloy cover. These Condulets are particularly well suited for pulling large conductors or conductors that are stiff because of their lead sheathing. The cover opening is placed at an angle, thereby giving a direct pull from each hub opening. Covers are domed, which provides room for an easy bend in the conductor, thus avoiding undue strain upon the insulation or lead sheath.

The joint between the cover and body is made flame-tight by accurate grinding. Large screws are used to fasten the cover to the body and hold against the pressure developed by an internal explosion.

These Condulets are especially useful at motor locations.

	Overall Dimensions			
Cat. No.	Length Inches	Width Inches	Size Hubs	Price Each
LBH10	6 1/16	2¾	½	**$2.80**
LBH20	6 1/16	2¾	¾	**3.00**
LBH30	9⅜	4	1	**7.70**
LBH40	9⅜	4	1¼	**8.00**
LBH50	12½	5	1½	**11.50**
LBH60	12½	5	2	**12.00**
LBH70	17⅜	6 7/16	2½	**25.00**
LBH80	17⅜	6 7/16	3	**25.60**

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

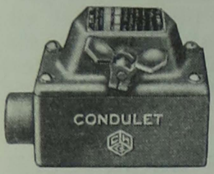
EFS SERIES PUSH BUTTON SWITCH CONDULETS

Explosion-Proof and Dust-Tight

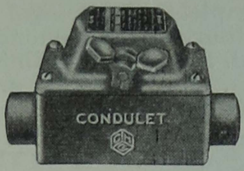
Schedule CE

EFS series Condulets are furnished with double push button switches.

WITH ROCKER TYPE OPERATING HANDLE



Type EFS



Type EFSC

Type EFS

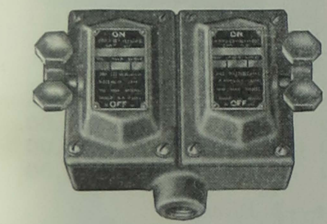
Cat. No.	Style	Amperes 125V.	Amperes 250V.	H.P.	Size	Form*	Price Each
EFS1138	1-Pole	20	10	..	½	38	$5.45
EFS114	2-Pole	20	20	2	½	4	5.55
EFS1139	3-Way	15	10	..	½	39	5.85
EFS2138	1-Pole	20	10	..	¾	38	5.50
EFS214	2-Pole	20	20	2	¾	4	5.60
EFS2139	3-Way	15	10	..	¾	39	5.90

Type EFSC

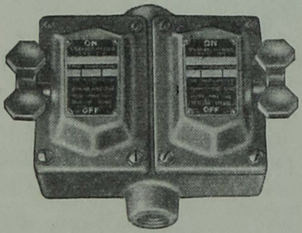
Cat. No.	Style	Amperes 125V.	Amperes 250V.	H.P.	Size	Form*	Price Each
EFSC1138	1-Pole	20	10	..	½	38	5.55
EFSC114	2-Pole	20	20	2	½	4	5.65
EFSC1139	3-Way	15	10	..	½	39	5.95
EFSC2138	1-Pole	20	10	..	¾	38	5.65
EFSC214	2-Pole	20	20	2	¾	4	5.75
EFSC2139	3-Way	15	10	..	¾	39	6.05

WITH ROCKER TYPE OPERATING HANDLE

TWO-GANG



Type EFS—Two-Gang



Type EFSC—Two-Gang

Type EFS—Two-Gang

Cat. No.	Style	Amperes 125V.	Amperes 250V.	H.P.	Size	Form*	Price Each
EFS1238	1-Pole	20	10	..	½	38	$10.90
EFS2238	1-Pole	20	10	..	¾	38	11.00
EFS2204	2-Pole	20	20	2	¾	4	11.20
EFS2239	3-Way	15	10	..	¾	39	11.80

Type EFSC—Two-Gang

Cat. No.	Style	Amperes 125V.	Amperes 250V.	H.P.	Size	Form*	Price Each
EFSC1238	1-Pole	20	10	..	½	38	11.10
EFSC1204	2-Pole	20	20	2	½	4	11.30
EFSC1239	3-Way	15	10	..	½	39	11.90
EFSC2238	1-Pole	20	10	..	¾	38	11.30
EFSC2204	2-Pole	20	20	2	¾	4	11.50
EFSC2239	3-Way	15	10	..	¾	39	12.10

Outside dimensions, exclusive of hubs: Types EFS and EFSC — Length, 5⅛ inches; width, 3½ inches; depth, 4 inches. Types EFS and EFSC, two-gang — Length, 5⅛ inches; width, 7¼ inches; depth, 4 inches. *See opposite column.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

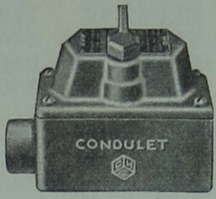
EFS SERIES TUMBLER SWITCH CONDULETS

Explosion-Proof and Dust-Tight

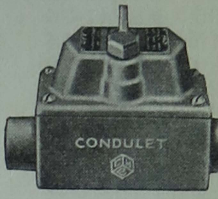
Schedule CE

EFS series Condulets are furnished with tumbler switches.

TYPES EFS AND EFSC



Type EFS



Type EFSC

Type EFS

Cat. No.	Style	Amperes 125V.	Amperes 250V.	H.P.	Size	Form*	Price Each
EFS1129	1-Pole	20	10	....	½	29	$5.45
EFS118	2-Pole	20	20	2	½	8	5.55
EFS1130	3-Way	15	10	....	½	30	5.85
EFS2129	1-Pole	20	10	....	¾	29	5.50
EFS218	2-Pole	20	20	2	¾	8	5.60
EFS2123	3-Pole	10	10	¼AC	¾	23	8.60
EFS2130	3-Way	15	10	....	¾	30	5.90

Type EFSC

Cat. No.	Style	Amperes 125V.	Amperes 250V.	H.P.	Size	Form*	Price Each
EFSC1129	1-Pole	20	10	....	½	29	5.55
EFSC118	2-Pole	20	20	2	½	8	5.65
EFSC1123	3-Pole	10	10	¼AC	½	23	8.65
EFSC1130	3-Way	15	10	....	½	30	5.95
EFSC2129	1-Pole	20	10	....	¾	29	5.65
EFSC218	2-Pole	20	20	2	¾	8	5.75
EFSC2123	3-Pole	10	10	¼AC	¾	23	8.75
EFSC2130	3-Way	15	10	....	¾	30	6.05

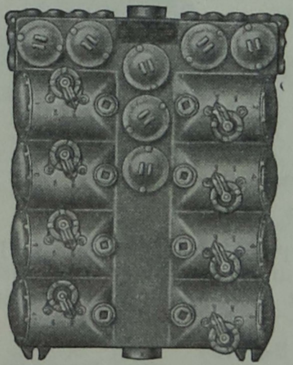
*Order by catalog number. For identification of Condulets for hazardous locations, when consulting Underwriters Laboratories', Inc., List of Inspected Electrical Equipment, use type and form number (rather than catalog number).

Outside dimensions, exclusive of hubs: Types EFS and EFSC—Length, 5⅛ inches; width, 3½ inches; depth, 4 9/16 inches. Types EFS and EFSC, two-gang—Length, 5⅛ inches; width, 7¼ inches; depth 4 9/16 inches.

Cadmium-galvanized is the standard finish.

TYPE FLP PANELBOARDS

With Circuit Breakers—Schedule CE
Explosion-Proof and Dust-Tight



Type FLP consists of an assembly of circuit breakers in an explosion-proof housing. A separate compartment is provided for each breaker. Wiring connections are made to main and branch circuit terminal blocks mounted in a separate T-shaped compartment. Main terminals are furnished with main lugs only. The wire terminals are accessible through openings provided with threaded covers. Main hubs are arranged for 2-inch conduit and are located at each end of the main terminal compartment. The ¾-inch branch circuit hubs open into the branch terminal compartment. Regularly furnished wired for 3 to 2 or 2 to 2-wire systems, convertible.

Dimensions overall, including hubs: Length, 8 circuits, 27⅛ inches; 6 circuits, 23½ inches; 4 circuits, 18⅜ inches; width, 21¾ inches; depth, 6¾ inches.

For prices Type FLP Panelboards, see following page.

CROUSE-HINDS CONDULETS

TYPE FLP PANELBOARDS—Continued

No. Cir.	Amp. Cap. Each Cir.	Single-Pole 125 Volts D.C. or A.C. Cat. No.	Single-Pole Price Each	Double-Pole 125-250 Volts D.C. or A.C. Cat. No.	Double-Pole Price Each
4	15	FLP41-15	$155.00	FLP42-15	$175.00
	20	FLP41-20	155.00	FLP42-20	175.00
	25	FLP41-25	155.00	FLP42-25	175.00
	35	FLP41-35	158.00	FLP42-35	178.00
6	15	FLP61-15	200.00	FLP62-15	240.00
	20	FLP61-20	200.00	FLP62-20	240.00
	25	FLP61-25	200.00	FLP62-25	240.00
	35	FLP61-35	205.00	FLP62-35	245.00
8	15	FLP81-15	230.00	FLP82-15	280.00
	20	FLP81-20	230.00	FLP82-20	280.00
	25	FLP81-25	230.00	FLP82-25	280.00
	35	FLP81-35	236.00	FLP82-35	286.00

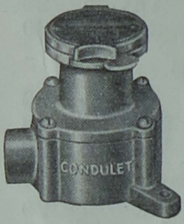
DELAYED ACTION ARKTITE PLUGS AND RECEPTACLES—EXPLOSION-PROOF

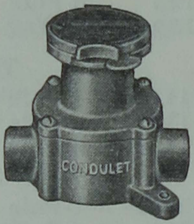
Schedule CE

TYPE CPS RECEPTACLE EQUIPMENT

2-Wire, 3-Pole—15-Amp. or 1-H.P.
115 or 230-Volt, 60-Cycle A.C.

Includes Condulet and receptacle. Takes type CPP plugs.





Size Hub	Dead End Hub Cat. No.	Dead End Hub Price Each	Through Feed Hubs Cat. No.	Through Feed Hubs Price Each
½	CPS14-120	$12.90	CPS14-121	$13.05
¾	CPS14-20	13.05	CPS14-21	13.25

If specified, type CPS receptacle equipment will be furnished without lugs at a reduction of **$.10** in the list price.

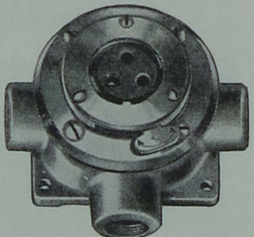
Outside dimensions of body, exclusive of hubs: Diameter, 4 inches; depth, 3⅞ inches.

TYPE CPS RECEPTACLE EQUIPMENT

For Hospitals—Explosion-Proof

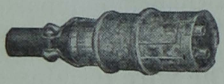
Includes Condulet, receptacle, and one ¾-inch pipe plug. Takes type CPP plugs.

Rating: 15-amp. or 1-H.P., 115 or 230-volt, 60-cycle A.C., 2-wire, 3-pole.



Cat. No.	Size Hub	Price Each
CPS212	¾	$20.00

TYPE CPP PLUGS



For type CPS receptacle equipment; furnished with cable grip and rubber bushing.

2-Wire, 3-Pole

Cat. No.	Rating	Diam. Cable	Price Each
CPP312	15-Amp. or 1-H.P.	.250 to .375	$5.00
CPP412	115 or 230 V.	.375 to .500	5.00
CPP512	60-Cy. A.C.	.500 to .625	5.00

Body of CPS receptacle equipment is made of cast Feraloy; face plate, chromium-plated; type CPP plugs, of Bakelite.

Outside dimensions of body, exclusive of hubs: CPS212—Depth, 2 13/16 inches; diameter, 3⅝ inches; width and length, 4⅜ inches.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

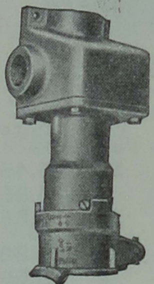
DELAYED ACTION ARKTITE PLUGS AND RECEPTACLES

Explosion-Proof

Schedule CE

The purpose of the delayed action is to permit the arc to be broken and the resulting flame, sparks, and hot metal parts to cool below the ignition temperature before the arcing chambers are opened to the atmosphere.

An interference on the rotating sleeve prevents complete withdrawal of the plug, but it can be withdrawn far enough to interrupt the circuit; and, as is the case in all Arktite plugs and receptacles, the resulting arc is broken in the arcing chamber.



TYPE CES RECEPTACLE EQUIPMENT

Includes Condulet, receptacle, and receptacle housing.

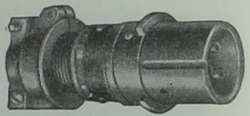
Type CES Condulets have three hubs, two of which are furnished with threaded pipe plugs.

Grounded through extra pole and shell.

Size Conduit Hubs	Circuit	Phase	Max. H.P.	Max. Amps.	Volts 60 Cy. A.C.	Style 2 Cat. No.	Style 2 Price Each
¾	2-Wire 3-Pole	1	½ 1½	7 30	460 230	CES2213	$23.50
¾	3-Wire 4-Pole	3	1 3	7 30	460 230	CES2214	25.00
1¼	2-Wire 3-Pole	1	3	30 60	460 230	CES4233	29.50
1¼	3-Wire 4-Pole	3	5	30 60	460 230	CES4234	33.00

TYPE CPH PLUGS

For type CES receptacle equipment. Furnished with cable grip and rubber bushing.

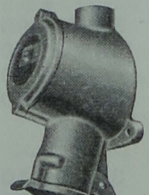


2-Wire, 3-Pole—Single Phase

H.P.	Amps.	Volts	Diam. Cable	Cat. No.	Price Each
½ 1½	7 30	460 230	.500 to .625	CPH7513	$11.00
			.625 to .750	CPH7613	11.00
			.750 to .875	CPH7713	11.00

3-Wire, 4-Pole—3 Phase

H.P.	Amps.	Volts	Diam. Cable	Cat. No.	Price Each
1 3	7 30	460 230	.500 to .625	CPH7514	11.75
			.625 to .750	CPH7614	11.75
			.750 to .875	CPH7714	11.75



TYPE FSQ INTERLOCKED RECEPTACLE AND SWITCH CONDULET

Furnished with 2-pole switch and 2-wire, 3-pole receptacle. Takes Type FP Plug listed below.

Cat. No.	Size In.	Amp.	Volts AC or DC	Price Each
FSQ223	¾	10	250	$14.00

TYPE FP PLUG

For FSQ Condulet. Furnished with cable grip and rubber bushing. Grounded through extra pole and shell.

Cat. No.	Amp.	Volts AC or DC	Poles	Dia. Cable	Price Each
FP23	10	250	2-W., 3-P.	375 to .500	$4.00

CROUSE-HINDS CONDULETS

TYPE UNA CONNECTORS

Explosion-Proof and Dust-Tight

Schedule CE

Type UNA is a convenient coupling or union for conduit joints made at angles from 90 to 180 degrees. A single clamping nut provides a union feature as well as easy adjustment to required angles.

Style	Size In.	Dimensions Length	Dimensions Width	Cat. No.	Std. Pkg.	Price Each
Male	½	4	2 11/32	UNA16	25	$1.45
Male	¾	4½	2 27/32	UNA26	25	1.75
Male	1	5¼	3 15/32	UNA36	10	2.00

TYPE EYS SEALING CONDULETS

Explosion-Proof
For Sealing Vertical Runs of Conduit

Schedule CE

In hazardous locations, Class 1, the conduit system should be sectionalized by sealing at frequent intervals.

The approximate volume that each size package of "Chico A" sealing compound will fill is given in the listing below.

With Female Hub Top and Bottom

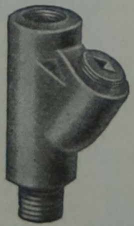
Size In.	Cat. No.	Body Lgth.	Body Wdth.	Price Each	*Cubic Inches
½	EYS1	3 9/32	2¼	$0.65	1¼
¾	EYS2	3 11/16	2 21/32	.80	2½
1	EYS3	4 5/16	3 5/32	1.05	4
1¼	EYS4	5 1/16	3 31/32	1.30	9
1½	EYS5	5½	4 17/32	1.95	15
2	EYS6	6¼	5 17/32	2.55	26
2½	EYS7	7 7/16	6 15/32	4.00	44
3	EYS8	8½	7⅞	5.00	136

With Male Hub Top and Female Hub Bottom

Size In.	Cat. No.	Body Lgth.	Body Wdth.	Price Each	*Cubic Inches
½	EYS16	3 27/32	2¼	$0.65	1¼
¾	EYS26	4⅜	2 21/32	.80	2½
1	EYS36	5 1/16	3 5/32	1.05	4
1¼	EYS46	5⅞	3 31/32	1.30	9
1½	EYS56	6⅜	4 17/32	1.95	15
2	EYS66	7⅛	5 17/32	2.55	26
2½	EYS76	8 7/16	6 15/32	4.00	44
3	EYS86	9½	7⅞	5.00	136

With Female Hub Top and Male Hub Bottom

Size In.	Cat. No.	Body Lgth.	Body Wdth.	Price Each	*Cubic Inches
½	EYS17	3 27/32	2¼	$0.65	1¼
¾	EYS27	4⅜	2 21/32	.80	2½
1	EYS37	5 1/16	3 5/32	1.05	4
1¼	EYS47	5⅞	3 31/32	1.30	9
1½	EYS57	6⅜	4 17/32	1.95	15
2	EYS67	7⅛	5 17/32	2.55	26
2½	EYS77	8 7/16	6 15/32	4.00	44
3	EYS87	9½	7⅞	5.00	136



*Approximate internal volumes.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS CONDULETS

"CHICO A" SEALING COMPOUND

Schedule CE

Not affected by gasoline, alcohol, acetone, ether, naphtha, petroleum, benzol, or lacquer solvent. For sealing Condulets for hazardous locations.

Pkg. No.	Description of Package	Net Wt.	Volume Cu. In.*	Cat. No.	Price Each
1		4 oz.	4	Chico A1	$0.30
2		8 oz.	8	Chico A2	.40
3	Friction Top Can	1 lb.	16	Chico A3	.65
4		1 lb.	16	Chico A4	1.00
5		5 lb.‡	80	Chico A05	2.25

*Number of cubic inches volume this amount will fill when set. ‡With ¾ oz. "Chico X" fiber.

"CHICO X" FIBER

Schedule CE

For plugging conduit openings in sealing Condulets for hazardous locations.

Pkg. No.	Net Wt. Oz.	Amt. Grams	Cat. No.	Price Pkg.
1*	⅜	10.6	Chico X1	$0.25
2*	¾	21.2	Chico X2	.40
3*	1	28.3	Chico X3	.50
4‡	2	56.5	Chico X4	.90
5‡	4	113	Chico X5	1.70
6‡	8	226	Chico X6	2.90
7‡	16	452	Chico X7	4.80

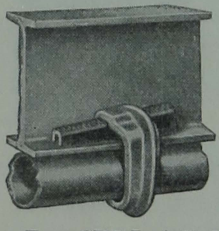
†HUBS Size Hub	†HUBS Grams Req.
½	4
¾	6
1	8
1¼	10
1½	15
2	21
2½	40
3	90

†Approximate amount of Fiber required per conduit hub.
*Packed in Envelopes. ‡Packed in Paper Boxes.

Cadmium-galvanized is the standard finish.

CROUSE-HINDS WEDGTITE PIPE HANGERS

Schedule CR



Type CHP Installed Pipe Parallel with a Structural Shape

Wedgtite pipe hangers are quickly and easily installed, as only a few blows of a hammer are necessary. These hangers can be used on any "I" beam, channel, or other structural shape having a lower flange ⅛ to ⅝ inch thick.

The hanger is made of malleable iron; wedge is of hardened steel.

TYPE CHP

For pipe running parallel with a supporting steel beam.

Cat. No.	Size In.	Std. Pkg.	Price Each
CHP1	½	100	$0.40
CHP2	¾	100	.45
CHP3	1	100	.50
CHP4	1¼	100	.55
CHP5	1½	100	.60
CHP6	2	100	.65

TYPE CHR

For pipe running at right angles to supporting steel beam.

Cat. No.	Size In.	Std. Pkg.	Price Each
CHR1	½	100	$0.40
CHR2	¾	100	.45
CHR3	1	100	.50
CHR4	1¼	100	.55
CHR5	1½	100	.60
CHR6	2	100	.65

TYPE CHU

Takes ½-inch hanger bolt. For suspending a pipe or group of pipes from steel beams.

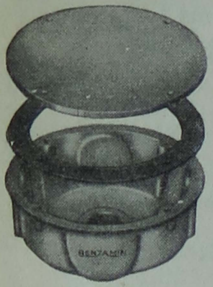
Cat. No.	Std. Pkg.	Price Each
CHU1	100	$0.55
CHU2	100	.65

BENJAMIN WATER-TIGHT FITTINGS

TYPE M JUNCTION VAPOLETS

Standard 4½-Inch Water Tight Outlet Box 1½-Inch Deep

Without Lugs


No. 6701

Vapolet Box.—Cast brass or cast iron; 1½ inches deep inside, 4½ inches outside diameter. Boxes tapped for No. 10-24 brass screws which fasten cover. Boxes are keyless type.

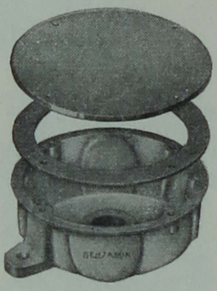
Tapping.—Boxes listed are not tapped for conduit entrance. For tapping specifications see "How to Specify Tapping" in adjoining column.

Cover and Gasket.—Cast brass No. 6920 or cast iron No. 6921 cover, as listed. Rubber gasket makes water-tight connection.

Finish.—Brass boxes and covers regularly unfinished. Iron boxes and covers are cadmium plated.

Cat. No.	Material	Description	Wt. Lbs. Each	List Price
6700	Brass	Box, Cover and Gasket	2¼	**$2.15**
6701	Iron	Box, Cover and Gasket	2¼	**.90**
6900	Brass	Vapolet Box Only	1¾	**1.45**
6901	Iron	Vapolet Box Only	1¾	**.50**

With Lugs


No. 6636

Vapolet Box—Cast brass or cast iron keyless junction box with mounting lugs. 1½ inch deep inside, 4½ inch outside diameter at cover. Screw holes in lugs spaced on 5½ inch centers. Box tapped for 4 No. 10-24 brass screws which fasten cover.

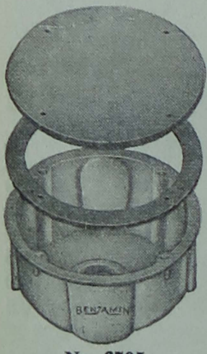
Other specifications — See listing above.

Cat. No.	Material	Description	Wt. Lbs. Each	List Price
6635	Brass	Box, Cover and Gasket	2½	**$2.40**
6636	Iron	Box, Cover and Gasket	2½	**1.00**
6630	Brass	Vapolet Box Only	2	**1.70**
6631	Iron	Vapolet Box Only	2	**.60**

TYPE M DEEP JUNCTION VAPOLETS

Deep Type—4½-Inch Diameter Water Tight Outlet Box

Without Lugs


No. 6705

Vapolet Box—Cast iron, keyless junction box; 2¼ inches deep. Designed for flush work. Boxes are tapped for No. 10-24 brass screws which fasten cover.

Tapping. — See directions under listing at top of adjoining column.

Cover and Gasket. — Cast iron cover No. 6921. Rubber gasket makes water-tight joint.

Finish.—Cadmium plate.

Cat. No.	Material	Description	Wt. Lbs. Each	List Price
6705	Iron	Box, Cover and Gasket	2⅝	**$1.10**
6913	Iron	Vapolet Box Only	2⅛	**.70**

Schedule 11 Discounts Apply.

BENJAMIN WATER-TIGHT FITTINGS

HOW TO SPECIFY TAPPING FOR TYPE M JUNCTION VAPOLETS

Benjamin Type M Junction Vapolets (4½ inch Diameter Water-Tight Outlet Boxes) referred to in these pages are regularly supplied not tapped for conduit entrance unless otherwise specified in the listings.

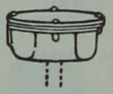
Boxes are provided with four bosses spaced 90° apart which can be tapped for ½, ¾ or 1 inch conduit entrance. A ½ or ¾ inch conduit entrance may also be tapped in the bottom of the box.

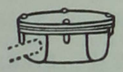
How to Order.—To simplify ordering the more common tapping arrangements have been assigned a letter—see diagrams below. First consult these diagrams to determine the letter of tapping combination desired. Then add this letter and the size of the conduit opening as a suffix to the number of the complete unit in question. For example, if catalog No. 6713 is the complete device, and feed-thru tapping for ½-inch conduit is desired, the number with the suffix added will be No. 6713C-½. If the complete device is Deep Type Water Tight Vapolet No. 6705, tapped three way for ¾-inch conduit, the number will be No. 6705T-¾.

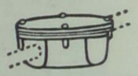
Important.—This system can be used only when all openings are to be of the same conduit size. Where such is not the case or where other arrangements are desired specify size and position of each outlet.

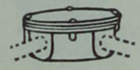
Tapping Charge.—Add to list price of complete unit without tapping, **$0.05** for each ½ or ¾-inch outlet and **$0.10** for each 1-inch outlet specified.

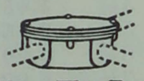
SIX TAPPING ARRANGEMENTS

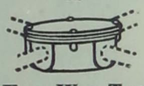
"A"

Bottom Tap

"V"

One Side Tap

"C"

Feed Thru Tap

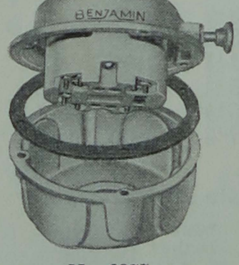
"L"

Angle Tap

"T"

Three Way Tap

"X"

Four Way Tap

30 AMPERE, 2 POLE TOGGLE SWITCH WITH TYPE M JUNCTION VAPOLET

Rating—30 Amp., 125 Volts; 20 Amp, 250 Volts


No. 6877

Switch — Double pole with plunger key control. Porcelain base with supporting screw holes spaced 2⅜ inches on centers. Switch is quick make and break type.

M Vapolet Box — Standard keyless outlet box either brass No. 6900, or iron No. 6901.

Tapping — Boxes regularly furnished not tapped. For tapping charges, data see above.

Cover—Brass, furnished with water-tight stuffing box and plunger key.

Finish—Brass Covers and boxes are regularly unfinished. Iron boxes are cadmium plated.

Cat. No.	Kind of Box	Description	Wt. Lbs. Each	List Price
6878	Brass	Complete with Box	3⅜	**$5.55**
6877	Iron	Complete with Box	5¼	**4.60**

Schedule 11 Discounts Apply.

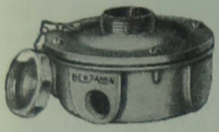
BENJAMIN WATER-TIGHT FITTINGS

Listed by Underwriters' Laboratories

TWO WIRE RECEPTACLE

10 Amperes, 125–250 Volts

No. 7863



No. 7751

Receptacle — Keyless, two wire type; molded composition base.

Plug — No. 7863 or 7864.

Outlet Box — Water-tight, std., keyless; No. 6900 brass, 6901 iron.

Tapping — Box regularly not tapped for conduit unless specified. Following arrangements available at charge of **$0.05** list for each ½″ or ¾″ outlet and **$0.10** for each 1″ outlet: bottom, one side, feed through, angle, three-way and four-way. Finish—Brass parts unfinished. Iron parts sprayed aluminum over electro-plating.

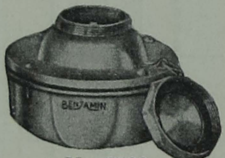
Cat. No.	Kind of Box	Description	Net Wt. Lbs. Each	List Price
7750	Brass	Comp. less Plug	2 15/16	**$3.60**
7751	Iron	Comp. less Plug	2 11/16	**2.65**
7894	....	Cover with Recpt. Only	1 3/16	**2.05**
7892	....	Brass Cover Only	1	**1.45**
7883	....	Two Wire Recpt. Only	3/16	**.60**

TWO AND THREE WIRE PLUG RECEPTACLES

30 Amp., 250 Volts D.C. or 440 Volts A.C.

With Std. 4½-Inch Water Tight Outlet Box

No. 7861



No. 7766

Receptacle — Keyless with molded composition base.

Plug — Three wire, No. 7861 or 7896; two-wire, No. 7862 or 7887. Order separately.

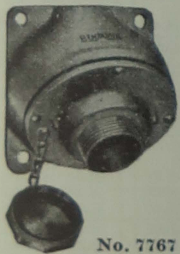
Outlet Box — Water tight, std., keyless. Nos. 6900 brass; 6901 iron.

Tapping — Same as above.

Finish — Same as above.

Cat. No.	No. Poles	Description	Net Wt. Lbs. Each	List Price
7765	3	Brass, Comp. less Plug	3⅜	**$4.50**
7766	3	Iron, Comp. less Plug	3⅛	**3.55**
7717	2	Brass, Comp. less Plug	3⅜	**4.50**
7718	2	Iron, Comp. less Plug	3⅛	**3.55**
7855	3	Cover with Recept. Only	1 9/16	**2.95**
7885	3	Receptacle Only	7/16	**1.30**
7854	2	Cover with Recept. Only	1 9/16	**2.95**
7884	2	Receptacle Only	7/16	**1.30**
7889	..	Brass Cover Only	1⅛	**1.65**
7879	..	Gasket Only	1/32	**.10**

With 45-Degree Angle Water Tight Outlet Box


No. 7767

Receptacle — Same as above.

Plug — 30 amp., same as above.

Outlet Box — 45-degree angle iron box with brass cover.

Tapping—Regularly tapped for ½″ pipe at top; also ½″ rear connection if specified at **$0.05** advance in list.

Finish — Same as above.

Cat. No.	No. Poles	Description	Net Wt. Lbs. Each	List Price
7767	3	Iron, Comp. less Plug	4 9/16	**$4.40**
7719	2	Iron, Comp. less Plug	4 9/16	**4.40**
7848	..	Iron Box less Cover	3	**1.35**

Schedule 11 Discounts Apply.

BENJAMIN WATER-TIGHT FITTINGS

Listed by Underwriters' Laboratories

THREE BLADE POLARIZED RECEPTACLE

Single Outlet Type

5 Amperes, 125–250 Volts

No. 6762

No. 6713

Receptacle — Std., keyless, three blade polarized; molded composition base.

Plug — No 6762 or 6764.

Outlet Box — Water tight, std., keyless; Nos. 6900 brass, 6901 iron.

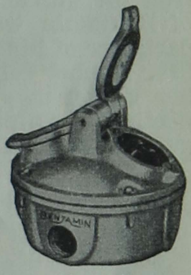
Tapping — Same as for TWO WIRE RECEPTACLE TYPE.

Finish — Brass parts unfinished. Iron parts sprayed aluminum over electro-plating.

Cat. No.	Kind of Box	Description	Net Wt. Lbs. Each	List Price
6712	Brass	Comp. less Plug	3 1/16	**$3.85**
6713	Iron	Comp. less Plug	2 13/16	**2.90**
6936	....	Cover with Recpt. Only	1 5/16	**2.30**
6923	....	Cover Only	⅞	**1.40**
6985	....	Receptacle Only	7/16	**.90**

Duplex Outlet Type

15 Amp., 125 Volts; 10 Amp., 250 Volts, Per Outlet



No. 6849

Receptacle — Std., keyless, three blade polarized, grounded or non-grounded; composition base.

Plug Cap — Std. three blade, polarized caps such as Hubbell Nos. 7055, 9750 and Bryant No. 9112. Caps not supplied.

Outlet Box — No. 6901 iron, same as above.

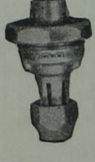
Tapping — Same as for TWO WIRE RECEPTACLE TYPE.

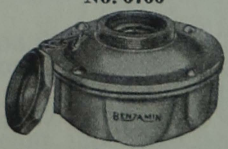
Finish — Same as above.

Grounded Receptacles Cat. No.	Grounded Receptacles List Price	Non-Grounded Receptacles Cat. No.	Non-Grounded Receptacles List Price	Description
6849	**$4.00**	**6880**	**$4.00**	Comp. less Plug Caps
6850	**3.40**	**6881**	**3.40**	Cover with 2 Recpt. Only
6855	**1.60**	**6855**	**1.60**	Cover Only
7214	**.90**	**7215**	**.90**	Single Recpt. Only

SINGLE SCREW BASE PLUG RECEPTACLE

660 Watts, 250 Volts


No. 6766



No. 6717

Receptacle — Edison base, one-piece, keyless.

Plug — Edison base type No. 6766 or 6767. Order separately.

Outlet Box — Water tight, standard; No. 6900 brass, No. 6901 iron.

Tapping — Same as for TWO WIRE RECEPTACLE TYPE.

Finish — Same as above.

Cat. No.	Kind of Box	Description	Net Wt. Lbs. Each	List Price
6716	Brass	Comp. less Plug	2 15/16	**$3.50**
6717	Iron	Comp. less Plug	2 11/16	**2.55**
6912	....	Cover with Recpt. Only	1 3/16	**1.95**
6989	....	Recpt. with Gasket	5/16	**.55**

Schedule 11 Discounts Apply.

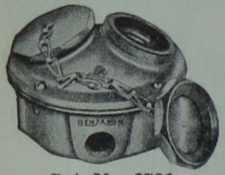
BENJAMIN WATER-TIGHT FITTINGS

DUPLEX SCREW BASE PLUG RECEPTACLE

Listed by Underwriters' Laboratories

660 Watts, 250 Volts Per Outlet

Cat. No. 6766



Cat. No. 6721

Receptacle — Edison base, duplex, keyless; molded composition base.

Plug — Edison base type No. 6766 or 6767. Order separately.

Outlet Box — Water tight, standard; No. 6900 brass, No. 6901 iron.

Tapping — Same as for TWO WIRE RECEPTACLE TYPE.

Finish — Brass parts unfinished, iron parts sprayed aluminum over electro-plating.

Cat. No.	Kind of Box	Description	Net Wt. Lbs. Ea.	List Price
6720	Brass	Comp. less Plugs	3 5/16	**$5.55**
6721	Iron	Comp. less Plugs	3	**4.60**
6914	....	Duplex Recpt. Only	⅜	**1.20**
6915	....	Cover with Recpt. Only	1½	**4.00**
6937	....	Brass Cover Only	1⅛	**2.80**

WATER-TIGHT ATTACHING PLUGS

***Listed by Underwriters' Laboratories**

Plugs have cast brass body and gasketed swivel ring for quick attachment to screw thread cover of Benjamin water tight outlet boxes. Insulating parts are of high heat molded composition or bakelite. Rubber cable gland in neck of device and rubber gasket in swivel ring, make water tight connection when plug is attached to receptacle. Brass parts are regularly unfinished.

Cat. No. 6762

Cat. No. 6766

Cat. No. 7863

Cat. No. 7861

***Three-Blade Polarized Type**

For use with Three-Blade Recept. No. 6985 in W. T. Outlet Box; 5 amp., 125–250 volts. Has chuck jaw cord grip.

Cat. No.	Type	Wire Opening Arranged For	Net Wt. Lbs. Ea.	List Price
6762	3 Blade	⅜″–31/64″ Dia. Cable	11/16	**$2.00**
6764	3 Blade	15/32″–21/32″ Dia. Cable	11/16	**2.00**

Edison Screw Base Type

For use with Edison Base Recept. Nos. 6914, 6989 in W.T. Outlet Boxes; 660 watts, 250 volts. Has chuck jaw cord grip.

Cat. No.	Type	Wire Opening Arranged For	Net Wt. Lbs. Ea.	List Price
6766	Screw Base	⅜″–31/64″ Dia. Cable	¾	**$2.20**
6767	Screw Base	15/32″–21/32″ Dia. Cable	¾	**2.20**

***10 Ampere Two Wire Type**

For use with Receptacle No. 7883 in W.T. Outlet Box; 10 ampere, 125–250 volts.

Cat. No.	Type	Wire Opening Arranged For	Net Wt. Lbs. Ea.	List Price
7863	2 Wire	7/16″–17/32″ Dia. Cable	½	**$1.80**
7864	2 Wire	½″ Conduit	7/16	**1.80**

30 Amp. 2 and 3-Wire Polarized Type

For use with 30 amp. Two and Three Wire Recept. in W.T. Outlet Box. Nos. 7861 and 7862 can also be arranged for ⅝″ to ¾″ dia. cable at same price.

Cat. No.	Type	Wire Opening Arranged For	Net Wt. Lbs. Ea.	List Price
7861	3 Wire	7/16″–19/32″ Dia. Cable	¾	**$3.00**
7886	3 Wire	⅞″ O.D. Flex. Cond.	15/16	**3.50**
7862	2 Wire	7/16″–19/32″ Dia. Cable	¾	**3.00**
7887	2 Wire	⅞″ O.D. Flex. Cond.	15/16	**3.50**

Schedule 11 Discounts Apply.

COLUMBIA SCREW COVER PULL BOXES

These pull boxes can be supplied in any thickness of steel, and in every size required. Due to the use of large conduits, it is often necessary to use a heavier gauge of steel than is called for by the code.

Cabinets are furnished with standard knockouts. If special knockouts are required, a **$1.00** labor charge for each additional size change will be made regardless of the quantity of boxes ordered.

If boxes are wanted without knockouts, please mention it. Boxes without knockouts take list price less discount.

Special pull boxes of any design, size and specification adapted to any requirement, are made to your order.

Prices are for boxes finished in black enamel. For galvanized finish, add 15 per cent. Sizes not listed at proportionate prices.

NO. 16 GAUGE STEEL—STANDARD

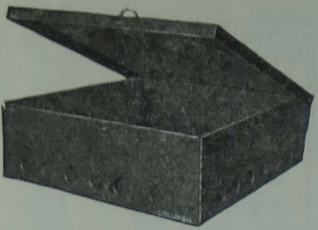
NOTE: The list prices of sizes which are omitted in this list must be made of heavier gauge steel to conform with the National Electric Code.

Width Inches	Height Inches	DEPTH IN INCHES					
		3 In.	4 In.	6 In.	8 In.	10 In.	12 In.
4	6	$ .96	$1.17	.....	.....	.....	.....
4	8	1.08	1.32	.....	.....	.....	.....
4	10	1.20	1.44	$1.83	.....	.....	.....
6	6	.94	1.08	1.88	$2.05	.....	.....
6	9	1.15	1.48	2.26	2.54	.....	.....
6	10	1.32	1.58	2.41	2.70	.....	.....
6	11	1.41	1.70	2.26	2.98	.....	.....
6	12	1.50	1.68	2.66	3.06	.....	.....
6	16	1.80	2.04	3.00	3.78	.....	.....
6	8	1.05	1.32	2.13	2.36	.....	.....
8	8	1.28	1.53	2.30	2.76	.....	.....
8	10	1.47	1.72	2.55	3.16	$3.60	.....
8	12	1.72	2.01	2.90	3.55	4.00	$4.35
8	15	2.01	2.31	3.30	4.10	4.70	5.25
8	18	2.31	2.67	3.60	4.75	5.40	6.00
9	9	1.48	1.89	2.55	3.20	3.75	4.05
9	12	1.83	2.13	3.00	3.80	4.35	4.30
9	15	2.10	2.45	3.50	4.45	5.00	5.60
9	16	2.28	2.52	3.67	4.60	5.25	5.85
9	18	2.43	2.91	3.95	4.95	5.75	6.35
9	20	2.70	3.17	4.25	5.35	6.20	6.85
9	24	3.06	3.55	4.80	6.17	7.20	7.90
9	28	.....	.....	.....	.....	.....	.....
9	32	.....	.....	.....	.....	.....	.....
9	36	.....	.....	.....	.....	.....	.....
10	10	1.78	2.01	2.95	3.60	4.15	4.55
10	12	1.98	2.25	3.25	4.05	4.60	5.25
10	15	2.34	2.61	3.70	4.65	5.35	5.92
10	18	2.67	2.80	4.20	5.30	6.10	6.75
10	20	3.16	3.58	4.65	5.66	6.35	7.05
10	24	3.70	4.15	5.30	6.55	7.30	8.10
10	28	.....	.....	.....	.....	.....	.....
10	32	.....	.....	.....	.....	.....	.....
10	36	.....	.....	.....	.....	.....	.....
12	12	2.45	2.78	3.72	4.40	4.95	5.50
12	16	3.05	3.06	4.45	5.37	6.00	6.62
12	18	3.32	3.30	4.80	5.85	6.50	7.10
12	20	3.56	3.85	5.15	6.30	7.05	7.75
12	24	4.24	4.50	5.88	7.30	8.10	8.90
12	28	.....	.....	.....	.....	.....	.....
12	32	.....	.....	.....	.....	.....	.....
12	36	.....	.....	.....	.....	.....	.....
12	40	.....	.....	.....	.....	.....	.....
16	12	3.05	3.06	4.45	5.38	6.00	6.63
16	15	3.55	3.60	5.10	6.20	6.90	7.62
16	18	4.15	4.15	5.75	7.05	7.80	8.57
16	20	4.53	4.50	6.10	7.65	8.40	9.24
15	24	5.00	5.00	6.80	8.40	9.28	10.15
16	28	.....	.....	.....	.....	.....	.....
16	32	.....	.....	.....	.....	.....	.....
16	36	.....	.....	.....	.....	.....	.....
16	40	.....	.....	.....	.....	.....	.....
18	18	4.60	5.10	6.25	7.65	8.50	9.27
18	20	5.00	5.50	6.70	8.25	9.15	10.00
18	24	.....	.....	.....	.....	.....	.....
18	28	.....	.....	.....	.....	.....	.....

COLUMBIA STEEL SURFACE CABINETS

TYPE A APPROVED CABINETS

For Cutouts, Service Switches and Panel Boards



List Prices of Approved Cabinets

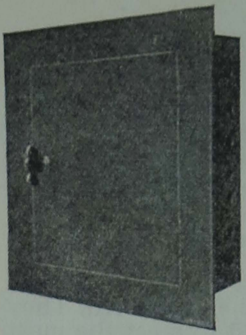
The boxes listed below are made of sheet steel of the required thickness to conform with Board of Underwriters' requirements and bear the Underwriters' labels. Boxes finished in black enamel. For galvanized finish, add 15 per cent.

Width Inches	Height Inches	DEPTH IN INCHES					
		3 In.	4 In.	6 in.	8 In.	10 In.	12 In.
* 4½	5	$ .86	$1.17	.....	.....	.....	.....
* 4½	9	1.00	1.32	.....	.....	.....	.....
6	6	.94	1.08	$1.88	$2.05	.....	.....
* 6	9	1.15	1.48	2.26	2.54	.....	.....
* 6	10	1.32	1.58	2.41	2.70	.....	.....
* 6	11	1.41	1.70	2.26	2.98	.....	.....
* 6	12	1.50	1.68	2.66	3.06	.....	.....
* 6	16	1.80	2.04	3.00	3.78	.....	.....
* 6	8	1.05	1.32	2.13	2.36	.....	.....
8	8	1.28	1.53	2.30	2.76	.....	.....
8	10	1.47	1.72	2.55	3.16	$3.60	.....
8	12	1.72	2.01	2.90	3.55	4.00	$4.35
8	15	2.01	2.31	3.30	4.10	4.70	5.25
8	18	2.31	2.67	3.60	4.75	5.40	6.00
9	9	1.48	1.89	2.55	3.20	3.75	4.05
9	12	1.83	2.13	3.00	3.80	4.35	4.30
9	15	2.10	2.45	3.50	4.45	5.00	5.60
9	16	2.28	2.52	3.67	4.60	5.25	5.85
9	18	2.43	2.91	3.95	4.95	5.75	6.35
9	20	2.70	3.17	4.25	5.35	6.20	6.85
9	24	3.06	3.55	4.80	6.17	7.20	7.90
9	28	5.45	6.15	7.55	9.35	10.05	11.55
9	32	6.25	6.80	8.40	10.45	11.68	12.86
9	36	6.78	7.60	9.20	11.55	12.90	14.18
10	10	1.78	2.01	2.95	3.60	4.15	4.55
10	12	1.98	2.25	3.25	4.05	4.60	5.25
10	15	2.34	2.61	3.70	4.65	5.35	5.92
10	18	2.67	2.80	4.20	5.30	6.10	6.75
10	20	3.16	3.58	4.65	5.66	6.35	7.05
10	24	3.70	4.15	5.30	6.55	7.30	8.10
10	28	5.98	6.57	8.07	9.94	10.78	12.20
10	32	6.60	7.35	8.97	10.69	12.30	13.60
10	36	7.35	8.12	9.96	12.20	13.60	15.00
12	12	2.45	2.78	3.72	4.40	4.95	5.50
12	16	3.05	3.06	4.45	5.37	6.00	6.62
12	18	3.32	3.30	4.80	5.85	6.50	7.10
12	20	3.56	3.85	5.15	6.30	7.05	7.75
12	24	4.24	4.50	5.88	7.30	8.10	8.90
12	28	6.75	7.44	8.97	11.05	12.20	13.49
12	32	7.53	8.34	9.93	12.30	13.60	14.90
12	36	8.40	9.24	10.95	13.60	15.00	16.40
12	40	9.24	10.07	11.94	14.45	16.40	17.90
16	12	3.05	3.06	4.45	5.38	6.00	6.63
16	15	3.55	3.60	5.10	6.20	6.90	7.62
16	18	4.15	4.15	5.75	7.05	7.80	8.57
16	20	4.53	4.50	6.10	7.65	8.40	9.24
15	24	5.00	5.00	6.80	8.40	9.28	10.15
16	28	8.40	9.18	10.80	13.24	14.48	15.80
16	32	9.45	10.20	12.00	14.73	16.15	17.50
16	36	10.50	11.37	13.17	15.45	17.80	19.22
16	40	10.58	12.48	14.40	17.80	19.40	21.05
18	18	4.60	5.10	6.25	7.65	8.50	9.27
18	20	5.00	5.50	6.70	8.25	9.15	10.00
18	24	8.08	8.88	10.40	12.62	13.95	15.45
18	28	9.24	10.08	11.70	14.30	15.35	17.00
18	32	10.38	11.25	13.00	15.90	17.45	18.88
18	36	11.58	12.45	14.31	17.50	19.20	20.74
18	40	12.75	13.65	15.60	19.20	20.96	22.20
21	21	8.19	9.00	10.50	12.80	14.02	15.68
21	24	9.15	9.96	11.64	13.78	15.50	16.80
21	28	10.50	11.40	13.08	16.00	17.44	18.85
21	32	11.85	12.75	14.73	17.76	19.35	20.86
21	36	13.14	13.10	16.05	19.55	21.25	23.07
21	40	14.49	15.45	17.52	21.38	23.17	24.96
24	24	10.32	11.16	12.84	15.55	17.02	18.50
24	28	11.76	12.69	14.46	17.55	19.14	20.67
24	32	13.26	14.22	16.11	19.46	21.22	22.88
24	36	14.76	15.72	17.76	21.44	23.35	25.12
24	40	16.20	17.22	19.05	23.50	25.40	27.36
24	42	28.30	29.89	33.10	41.45	44.32	47.68

*Hinged on width or short side.

COLUMBIA FLUSH CABINETS

TYPE P FLUSH CABINETS



List Prices of Approved Cabinets

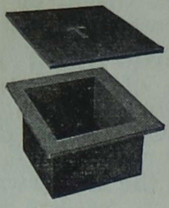
The boxes listed below are made of sheet steel of the required thickness to conform with Board of Underwriters' requirements, and bear the Underwriters' labels.

Approved Cabinets are always furnished unless otherwise specified. Standard finish is black baked japan.

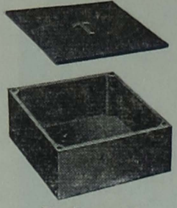
Width Inches	Height Inches	DEPTH IN INCHES					
		3 In.	4 In.	6 In.	8 In.	10 In.	12 In.
4½	5	$8.56	$3.90	....	....	....	....
4½	9	3.69	4.00	$5.25	....	....	....
6	6	3.66	3.95	4.60	....	....	....
6	9	3.88	4.21	5.00	....	....	....
6	10	3.97	4.30	5.20	$5.30	$5.60	$6.00
6	11	4.09	4.45	5.30	5.50	5.75	6.25
6	12	4.21	4.54	5.15	6.45	6.57	6.90
6	16	4.69	5.08	6.00	7.00	7.95	8.50
6	8	3.81	4.11	4.85	5.00	5.33	5.85
8	8	4.11	4.41	5.25	5.60	5.96	6.45
8	10	4.38	4.74	5.55	6.10	6.55	6.95
8	12	4.55	4.94	5.75	6.55	7.00	7.50
8	15	4.97	5.27	6.15	7.35	7.89	8.70
8	18	5.39	5.54	7.00	8.25	8.85	9.27
9	9	4.33	4.69	5.50	6.15	6.55	6.95
9	12	4.75	5.11	5.90	6.95	7.45	8.00
9	15	5.20	5.62	6.55	7.90	8.45	9.00
9	16	5.38	5.80	7.00	8.20	8.77	9.31
9	18	5.68	6.20	7.75	8.80	9.40	9.81
9	20	6.10	6.70	8.35	9.40	9.67	10.62
9	24	7.25	8.00	9.10	9.80	11.20	12.28
9	28	10.30	11.16	13.45	14.31	15.79	17.37
9	32	11.38	12.51	14.98	15.84	17.82	19.35
9	36	11.46	13.86	16.51	17.37	19.84	21.37
10	10	4.61	4.97	5.80	6.73	7.35	7.68
10	12	4.94	5.63	6.55	7.37	7.75	8.80
10	15	5.42	5.84	7.10	8.29	9.08	9.18
10	18	6.00	6.55	8.30	9.17	9.36	10.35
10	20	6.75	7.50	8.60	9.25	10.22	11.29
10	24	7.55	8.25	9.40	10.62	11.78	12.96
10	28	10.92	12.02	14.35	15.20	16.72	18.27
10	32	13.32	13.50	16.42	17.10	18.70	20.52
10	36	13.72	15.00	18.48	19.00	20.70	22.77
12	12	5.00	5.75	7.25	7.90	8.50	8.85
12	16	6.35	7.05	8.50	8.85	9.68	12.42
12	18	7.40	7.85	9.25	9.54	10.52	11.56
12	20	7.65	8.45	9.25	10.32	11.42	12.51
12	24	8.60	8.90	10.58	11.48	13.14	14.35
12	28	12.50	13.58	15.98	16.88	18.60	20.20
12	32	14.00	15.15	17.72	19.00	20.70	22.50
12	36	15.48	16.72	19.50	21.10	23.25	24.97
12	40	16.95	18.36	21.24	23.20	25.40	27.45
16	12	6.50	7.30	8.25	8.80	9.68	10.62
16	15	7.50	8.15	9.05	10.08	11.25	11.19
16	18	8.30	8.65	10.16	11.42	12.60	13.72
16	20	8.60	9.36	10.92	12.42	13.58	15.80
15	24	9.50	10.25	12.06	13.62	14.92	15.79
16	28	15.52	16.65	19.27	20.54	22.24	24.39
16	32	17.50	18.70	21.52	22.95	24.92	26.77
16	36	19.48	20.75	23.75	25.38	28.62	29.18
16	40	21.46	22.84	26.00	27.38	30.30	31.55
18	18	8.66	9.40	11.06	12.42	13.68	14.88
18	20	9.36	10.22	11.93	13.42	14.75	15.98
18	24	14.85	16.10	18.68	19.77	21.40	23.16
18	28	17.10	18.36	20.92	22.38	23.12	25.92
18	32	19.35	20.60	23.16	24.88	26.82	28.65
18	36	21.60	22.88	25.42	27.44	29.50	31.40
18	40	23.85	25.16	27.65	30.00	32.20	34.18
21	21	12.08	13.05	14.85	16.70	18.00	19.40
21	24	17.05	18.22	20.88	22.42	24.21	26.00
21	28	19.48	20.78	23.50	25.02	27.00	29.00
21	32	21.92	23.38	26.10	27.60	29.80	31.95
21	36	24.36	25.95	28.70	30.24	32.55	34.95
21	40	26.76	28.44	31.75	32.85	35.35	37.85
24	24	19.00	20.25	23.05	24.40	26.25	28.22
24	28	21.70	23.05	25.95	27.60	29.70	32.20
24	32	24.40	25.80	28.80	30.78	33.15	35.35
24	36	27.05	28.62	31.68	34.95	36.55	39.85
24	40	29.80	31.40	34.55	37.20	39.95	42.45
24	42	36.45	38.70	43.65	52.65	56.70	61.20
24	48	43.70	45.00	50.62	61.20	63.45	68.55
30	24	28.12	24.05	27.44	29.25	31.50	33.75
30	28	26.35	27.80	30.95	32.95	35.25	37.70
30	32	29.65	31.15	34.45	36.65	39.05	41.50
30	36	39.80	42.40	47.05	50.40	53.10	56.70

T & B CAST IRON JUNCTION BOXES AND COVERS

FLANGED AND UNFLANGED TYPES



Flanged



Unflanged

Flanged and unflanged cast iron boxes are watertight and weatherproof when gasketed. They are heavy walled boxes designed to meet the most rigid requirements of subway, industrial, marine, underground work, etc.

Boxes listed are all hot dip galvanized. Drilling and tapping not regularly included. Specfy size and location when required.

Flanged Type

Mfrs. No.	Size Inches Wdth. Lgth. Dpth.	Box Only Price Ea.	Box and Cover Price Ea.	Wt. Lbs. Complete	Gasket Price Each
10750	3 x 5¼ x 2	$1.70	$2.20	4.4	$0.30
10751	3 x 6 x 2	1.90	2.50	5	.30
10752	3¼ x 3¼ x 1½	1.10	1.50	2.4	.20
10753	3½ x 3½ x 1½	1.30	1.70	2.7	.20
10754	3½ x 4½ x 1½	1.70	2.20	3	.30
10755	3½ x 4½ x 2	1.80	2.30	3.4	.30
10895	4 x 4 x 3	1.40	2.00	3.8	.30
10756	4 x 4 x 4	2.00	2.60	3.8	.30
10914	4 x 6 x 3	2.80	3.60	7	.40
10899	4 x 8 x 3	3.60	4.80	12.6	.60
10757	4 x12 x 4	3.80	5.40	10.8	.70
10896	5 x 6 x 3	2.40	3.10	6.8	.50
10897	6 x 6 x 3	2.50	3.70	9	.60
10898	6 x 6 x 4	3.40	4.70	8	.60
10915	6 x 6 x 6	3.80	5.10	14	.60
10900	6 x 8 x 3	4.60	6.00	14	.70
10902	6 x 8 x 4	4.30	5.70	15	.70
10916	6 x 8 x 6	5.00	6.40	15.5	.70
10758	6 x 9 x 4	4.60	6.20	18	.80
10759	6 x10 x 6	4.80	6.60	24	.80
10906	6 x12 x 3	6.80	8.80	20	1.00
10908	6 x12 x 4	7.20	9.20	19	1.00
10910	6 x12 x 6	10.80	12.80	24	1.00
10760	6 x24 x 4	12.00	16.00	44	2.00
10761	6¼ x12¼ x 6	12.00	14.50	25	1.40
10901	8 x 8 x 3	6.00	8.00	14	.90
10903	8 x 8 x 4	6.20	8.20	16	.90
10904	8 x 8 x 6	7.30	9.30	18	.90
10763	8 x 8 x 8	7.80	9.80	20	.90
10917	8 x12 x 4	8.50	11.50	24	1.00
10764	8 x12 x 6	10.00	13.00	28	1.00
10918	8 x12 x 8	15.00	18.00	32	1.00
10765	8 x12 x 9	18.00	21.00	47	1.00
10783	8 x30 x 4	22.00	38.00	107	3.00
10784	9 x16 x 5	12.00	18.00	50	2.00
10766	9 x24 x 4	20.00	30.00	60	2.40
10913	9 x24 x 8	34.00	44.00	89	2.40
10767	9 x28 x 8	36.00	54.00	114	3.00
10905	10 x10 x 8	11.10	14.30	104	1.00
10768	10¼ x16¼ x12	24.00	32.00	74	2.20
10907	12 x12 x 3	9.00	13.00	41	1.20
10909	12 x12 x 4	9.00	13.00	45	1.20
10911	12 x12 x 6	14.00	18.00	52	1.20
10769	12 x12 x12	20.00	24.00	96	1.20
10770	12 x16 x 4	10.00	14.60	42	1.30
10771	12 x18 x12	32.00	37.50	130	1.40
10785	12 x24 x12	34.00	42.00	113	3.00
10786	12 x28 x 8	42.00	60.00	165	3.50
10772	12 x36 x 6	66.00	94.00	178	4.00
10912	14 x18 x 6	20.00	26.20	80	1.50
10773	14 x20 x 6	28.00	36.00	88	2.00
10774	14 x24 x 7	34.00	46.00	119	3.00
10775	15½ x15½ x 5	17.00	26.00	77	2.00
10776	16 x24 x12	32.00	46.00	210	3.00
10777	16 x30 x 8	42.00	64.00	205	3.50
10778	18 x18 x 8	31.00	44.00	140	3.00
10787	18 x26 x 5	43.00	64.00	170	4.00
10779	18 x30 x 8	50.00	74.00	235	3.80
10780	24 x30 x12	66.00	94.00	360	4.00
10788	25 x26 x 9	67.00	88.00	270	4.00
10781	30 x30 x12	110.00	172.00	455	4.50
10782	30 x48 x12	180.00	290.00	910	6.00

T & B CAST IRON JUNCTION BOXES AND COVERS

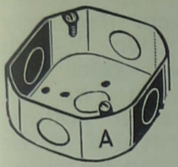
Unflanged Type

Mfrs. No.	Size Inches Wdth. Lgth. Dpth.	Box Only Price Ea.	Box and Cover Price Ea.	Wt. Lbs. Complete	Gasket Price Each
10859	2½ x 3½ x 1¾	$0.90	$1.10	2.5	$0.20
10858	2½ x 5 x 1½	1.00	1.30	4	.20
10702	3 x 4½ x 1½	1.00	1.30	2.25	.20
10864	3 x 6 x 2	1.30	1.75	4.75	.30
10857	3 x 6 x 2¾	1.45	1.90	5	.30
10860	3½ x 3½ x 2	1.00	1.30	2.25	.20
10861	4 x 4 x 2	.90	1.20	2.5	.20
10890	4 x 4 x 2½	1.00	1.30	4	.20
10862	4 x 4 x 3	1.00	1.30	3.5	.20
10700	4 x 4 x 4	1.70	2.00	5	.20
10701	4 x 5½ x 1½	1.20	1.60	4.5	.30
10866	4 x 6 x 2	1.50	2.00	5.5	.30
10703	4 x 6 x 4	2.20	2.70	7.75	.30
10704	4 x11 x 1½	2.60	3.80	8.5	1.00
10863	5 x 5 x 3	1.60	2.10	6	.40
10892	5 x 5 x 3¾	2.20	2.70	7	.40
10867	5 x 6 x 3	1.60	2.00	6	.50
10869	5 x 7 x 3	2.50	3.20	8	.60
10705	5 x10 x 2½	3.70	5.00	12	.80
10706	5¼ x 8 x 3¼	3.70	4.90	11	.70
10707	5½ x 5½ x 3½	2.60	3.30	9	.50
10893	5½ x 5½ x 5	2.70	3.40	14	.50
10894	6 x 6 x 2	1.70	2.40	6.5	.50
10962	6 x 6 x 3	1.70	2.40	7.5	.50
10868	6 x 6 x 4	2.60	3.30	8.5	.50
10963	6 x 6 x 5	3.50	4.20	12.5	.50
10964	6 x 6 x 6	3.70	4.40	14.5	.50
10871	6 x 8 x 3	2.70	3.60	10.5	.60
10872	6 x 8 x 4	3.10	4.00	10.5	.60
10874	6 x 8 x 6	4.60	5.50	15.5	.60
10854	6 x 9 x 3	2.50	3.70	3	.80
10875	6 x 9 x 4	4.30	5.50	16	.80
10878	6 x10 x 4	5.40	6.70	15	.90
10708	6 x10 x 5½	5.50	6.80	21	.90
10880	6 x12 x 3	4.80	6.80	18	1.00
10968	6 x12 x 4	4.70	6.70	21	1.00
10882	6 x12 x 6	8.00	10.00	27	1.00
10709	6 x15¾ x 2	7.00	9.50	17	1.30
10885	6 x18 x 3½	9.00	12.00	18.5	2.00
10710	6 x18 x 5	13.80	16.80	20	2.00
10711	6 x18 x 6	15.00	18.00	25	2.00
10712	6¼ x15 x 4	8.00	10.50	27.5	1.30
10870	7 x 7 x 3	2.80	3.60	11	.60
10884	7 x15 x 4½	8.00	11.00	34	1.60
10713	7 x17½ x 4¾	15.00	19.00	39	2.00
10965	8 x 8 x 3	4.00	5.20	13	.80
10873	8 x 8 x 4	4.00	5.20	13.5	.80
10717	8 x 8 x 8	9.00	10.20	23	.80
10714	8 x10 x 4	5.00	6.80	20	1.00
10855	8 x10 x 6	6.20	8.00	15.5	1.00
10715	8 x10 x 8	10.00	11.80	32	1.00
10718	8 x12 x 6	10.00	12.00	37	1.20
10719	8 x14 x 3	7.00	9.50	33	1.40
10720	8 x14 x 4	7.30	9.80	25	1.40
10721	8 x18 x 4½	10.00	13.50	32	1.50
10722	8 x24 x 4½	12.50	17.50	44	2.00
10723	8 x30 x 4½	16.00	23.00	58	2.80
10853	9 x 9 x 4	5.30	6.80	5	1.10
10724	9 x 9 x 7	8.00	9.50	17	1.10
10725	9 x15 x 4	6.60	9.20	28	1.50
10852	10 x10 x 5	5.40	7.00	14	1.20
10726	10 x10 x 6	7.40	9.00	17	1.20
10970	10 x14 x 8	17.00	20.50	55	1.40
10727	10 x16 x 6	14.50	18.50	51	1.80
10728	12 x12 x 3	7.00	10.00	27	1.60
10881	12 x12 x 4	7.50	10.50	32	1.60
10969	12 x12 x 6	9.60	12.60	39	1.60
10729	12 x12 x 8	12.00	15.00	46	1.60
10730	12 x16 x 6	12.40	16.20	59	1.80
10731	12 x16 x 8	15.40	19.20	61	1.80
10971	12 x18 x 4	16.00	20.50	53	2.00
10886	12 x18 x 5	18.00	22.50	60	2.00
10732	12 x18 x 6	19.50	24.00	68	2.00
10733	12 x18 x10	22.00	26.50	97	2.00
10734	12 x19 x 4	11.00	15.50	55	2.00
10735	12 x20 x 5	22.00	27.00	62	2.50
10736	12 x22 x 5	27.00	37.00	68	2.80
10737	12 x24 x 6	30.00	40.50	82	3.00
10738	12 x24 x24	98.00	108.50	185	3.00
10883	14 x14 x10	24.00	31.00	107	3.00
10739	14 x19 x 6	25.00	35.00	95	3.00
10740	14 x24 x12	32.00	44.00	178	3.50
10887	16 x24 x 8	31.00	44.00	139	3.80
10741	16 x24 x12	62.00	75.00	197	3.80
10851	16 x48 x 8	102.00	120.00	250	5.00
10742	18 x18 x 5	24.00	32.00	106	2.50
10743	18 x18 x 6	21.00	29.00	117	2.50
10744	18 x24 x 6	29.00	37.50	168	3.50
10745	18 x24 x 8	40.00	48.50	196	3.50
10746	24 x24 x 8	48.00	62.00	265	4.00
10888	24 x28 x 3½	37.00	52.00	225	4.50
10850	24 x48 x 8	110.00	140.00	370	5.50
10849	30 x36 x 8	118.00	130.00	385	5.50
10848	39 x46 x 8	150.00	176.00	570	6.00

AUSTIN OUTLET BOXES AND COVERS

Galvanized—Enameled

3¼-INCH OCTAGONAL BOXES AND COVERS



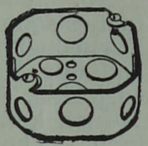
No. 7-O-½ box. 3¼ inches diameter, 1½ inches deep. Furnished with four ½-inch knockouts in sides and one in bottom.

No. 7-O-¾ box. 3¼ inches oct., 1½ inches deep. Has four ¾-inch knockouts in sides and one in bottom.

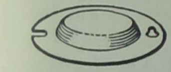
No. 7-O-SP box. 3¼ inches diameter, 1½ inches deep. One ½-inch knockout in opposite sides, one ¾-inch knockout in opposite sides and one ½-inch knockout in bottom.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
7-O-½	24151-½	100	48
7-O-¾	24151-¾	100	48
7-O-SP	24151-SP	100	48

No. 717 Box. 3¼ inches diameter, 1½ inches deep. Furnished with four ½-inch conduit and four loom knockouts in the sides, and three ½-inch conduit and four loom knockouts in the bottom.



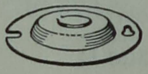
Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
717	24155	100	53
717C*	24155C	100	56



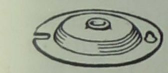
No. 7701. Steel cover, raised, closed.

7701	24-C-2	100	23

No. 7702. Steel cover, raised, with ½-inch knockout in center.



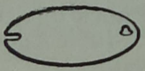
7702	24-C-7	100	23



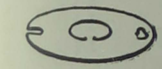
No. 7703-A. Steel cover, raised, with ⅜-inch drawn steel hole for drop cord work.

7703-A	24-C-12	100	22

No. 7704. Steel cover, flat blank.



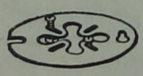
7704	24-C-1	100	20



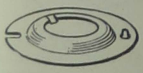
No. 7705. Steel cover, flat, with ½-inch knockout in center.

7705	24-C-6	100	20

No. 7708. Steel cover, flat, for 5 and 10-ampere snap switches, wall receptacles, etc. Slots in cover give range of centers from ⅞ to 1⅞ inches.



7708	24-C-28	100	18



No. 7711. Steel cover, raised, with 1½-inch hole, for receptacles.

7711	{24-C-35} {24-C-36}	100	20

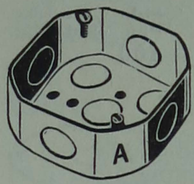
All 7700 series of covers fit any standard 3¼ or 3½-inch octagonal or round box.

*Furnished with 2 loom clamps in bottom.

AUSTIN OUTLET BOXES AND COVERS

Galvanized—Enameled

4-INCH OCTAGONAL BOXES



No. 9-O-½ box: 1½ inches deep, ½-inch knockouts. No. 9-O-¾ box: 1½ inches deep, ¾-inch knockouts.

9-O-½ box furnished with four ½-inch knockouts in sides and five ½-inch knockouts in bottom.

No. 9-O-¾ box has four ¾-inch knockouts in sides; two ¾-inch and three ½-inch in bottom.

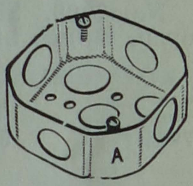
No. 9-OD-½ box: 2⅛ inches deep, ½-inch knockouts. No. 9-OD-¾ box: 2⅛ inches deep, ¾-inch knockouts. Furnished with four ½-inch, ¾-inch or 1-inch knockouts in sides and ½-inch in bottom.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
9-O-½	54151-½	50	70
9-O-¾	54151-¾	50	70
9-OD-½	54171-½	50	80
9-OD-¾	54171-¾	50	80
9-OD-1	54171-1	50	80

SPECIAL BOXES

No. 9-O Special Box: 4-inch octagon, 1½ inches deep, with combination of ½ and ¾-inch knockouts.

Furnished with one ¾-inch knockout in opposite sides and one ½-inch knockout in opposite sides, three ½-inch and two ¾-inch knockouts in bottom.

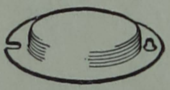


Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
9-O-Sp.	54151-Sp.	50	70

No. 9-OD Special Box is a four-inch octagon, 2⅛ inches deep and furnished with two ½-inch and two ¾-inch knockouts in sides, three ½-inch and two ¾-inch knockouts in bottom.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
9-OD-Sp.	54171-Sp.	50	80

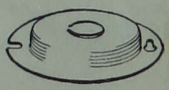
COVERS FOR 4-INCH OCTAGONAL BOXES



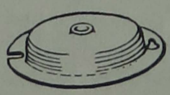
No. 7901. Steel cover, raised, closed, ⅝-inch high.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
7901	54-C-2	100	39

No. 7902. Steel cover, raised, ⅝-inch high, with ½-inch knockout in center.



Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
7902	54-C-7	100	39



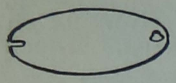
No. 7903-A. Steel cover, raised, ⅝-inch high, with ⅜-inch drawn steel hole for drop cord work.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
7903-A	54-C-12	100	40

AUSTIN OUTLET BOXES AND COVERS

Galvanized—Enameled

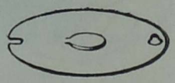
COVERS FOR 4-INCH OCTAGONAL BOXES



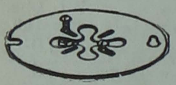
No. 7904. Steel cover, flat.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
7904	54-C-1	100	30

No. 7905. Steel cover, flat, with ½-inch knockout in center.



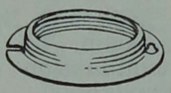
Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
7905	54-C-6	100	30



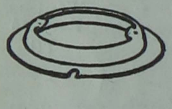
No. 7907. Steel cover, flat, for 5 and 10-ampere snap switches or wall receptacles.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
7907	54-C-28	100	27

No. 7909. Steel cover, raised, open, ⅝-inch high.



Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
7909	54-C-48	100	26



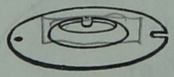
No. 7910. Steel cover, raised, open, depth ⅝-inch, with ears drilled and tapped 2$\frac{23}{32}$ inches center to center to take 3¼-inch covers (No. 7700 series).

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
7910	54-C-3	100	26

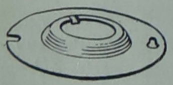
No. 7910-D. Raised 1¼ inches, open with ears 2$\frac{23}{32}$ inches center to center.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
7910-D	-----------	100	38

No. 7913. Steel cover, raised, with 1$\frac{41}{64}$-inch hole.



Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
7913	54-C-31	100	26



No. 7915. Steel cover, raised, with 1½-inch hole for ring receptacles.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
7915	54-C-35 54-C-36	100	31

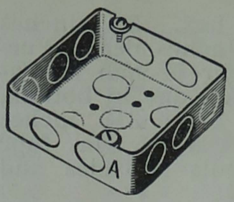
All 7900 series of covers fit any standard 4-inch octagonal or round box.

AUSTIN OUTLET BOXES AND COVERS

Galvanized—Enameled

4-INCH SQUARE OUTLET BOXES

Nos. 300-½ and 300-¾ Boxes

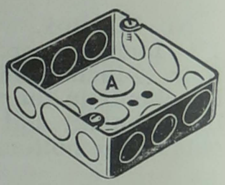


No. 300-½ and 300-¾ boxes are 1½ inches deep. Regularly furnished with two ½-inch knockouts in two sides and three knockouts in two opposite sides, five in bottom. Nail holes are provided in the sides so that box can be nailed to joist if desired. Boxes furnished with ¾-inch knockouts have two ¾-inch knockouts in each side, three ½-inch and two ¾-inch in bottom.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
300-½	52151-½	50	90
300-¾	52151-¾	50	90

11.85 - per 100

No. 300 Special



No. 300-Special box is 4 inches square, 1½ inches deep. Furnished with two ½-inch and one ¾-inch knockouts in each side. The bottom has three ½-inch knockouts and two ¾-inch. The location of the knockouts is so arranged that a ½-inch or ¾-inch knockout or knockouts comes just where wanted. Nail holes are provided in the sides so that box can be nailed to joist if desired.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
300-Sp.	52151-Sp.	50	90

No. 300-G. Four inches square and 1¼ inches deep. Has 10 half-inch knockouts in sides, 5 in bottom. Government type.

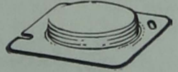
Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
300-G	-----------	50	80

Nos. 300-D-½, 300-D-¾ and 300-D-1 Boxes

These boxes are 4 inches square and 2⅛ inches deep. No. 300-D-½ has eight ½-inch knockouts in sides, five ½-inch in bottom. No. 300-D-¾ has eight ¾-inch knockouts in sides, three ½-inch and two ¾-inch in bottom. No. 300-D-1 has two 1-inch knockouts in each side with three ½-inch and two ¾-inch knockouts in bottom.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
300-D-½	52171-½	50	110
300-D-¾	52171-¾	50	110
300-D-1	52171-1	50	110

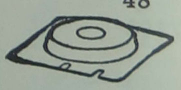
COVERS FOR 4-INCH SQUARE BOXES



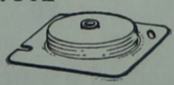
No. 7301. Steel cover, raised, closed, ⅝ inch high.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
7301	52-C-2	100	48

No. 7302. Steel cover, raised, ⅝-inch high, with ½-inch knockouts in center.



Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
7302	52-C-7	100	47



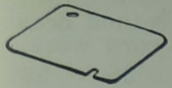
No. 7303-A. Steel cover, raised, ⅝-inch high, with ⅜-inch steel bushing.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
7303-A	52-C-12	50	47

AUSTIN OUTLET BOXES AND COVERS

Galvanized—Enameled

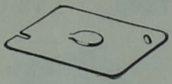
COVERS FOR 4-INCH SQUARE BOXES



No. 7305. Steel cover, flat blank.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
7305	52-C-1	100	39

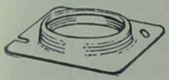
No. 7305-A. Steel cover, flat, with ½-inch knockout in center.



7305-A	52-C-6	100	39

No. 7305-B. Steel cover, raised, ⅝-inch high, 1½-inch opening for ring receptacles.

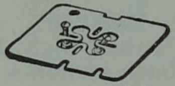
7305-B	52-C-35 52-C-36	50	45



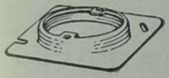
No. 7307. Steel cover, raised, open, ⅝-inch high.

7307	52-C-48	100	35

No. 7307-S. Steel cover, flat, for 5 and 10-ampere snap switches, wall receptacles, etc.



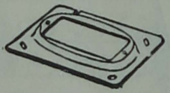
7307-S	52-C-28	50	34



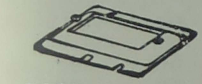
No. 7308. Steel cover, raised, open, with ears drilled and tapped 2$\frac{23}{32}$ inches center to center to take 3¼-inch covers. (No. 7700 series.)

7308	52-C-3	100	31

No. 7313-S. Steel cover, raised, ¼-inch high, for one rectangular base switch or receptacle.



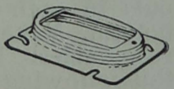
7313-S	52-C-62	50	28



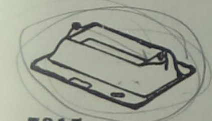
No. 7313. Steel cover, raised, ½-inch high, for one rectangular base switch or receptacle.

7313	52-C-13	50	34

No. 7314. Steel cover, raised, ¾-inch high, for one rectangular base switch or receptacle.



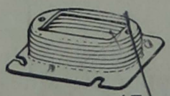
7314	52-C-14	50	39



No. 7315. Steel cover, raised, 1-inch high, for one rectangular base switch or receptacle.

7315	52-C-15	25	41

No. 7316. Steel cover, raised, 1¼-inches high, for one rectangular base switch or receptacle.



7316	52-C-16	25	47

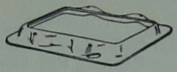
No. 7317-F. Raised ¼-inch for two flush devices.

7317-F	52-C-17¼	50	19

AUSTIN OUTLET BOXES AND COVERS

Galvanized—Enameled

COVERS FOR 4-INCH SQUARE BOXES



No. 7317-S. Steel cover, raised, ½-inch high, for two rectangular base switches or receptacles.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. per 100
7317-S	52-C-17	50	30

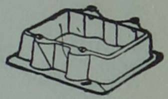
No. 7317. Steel cover, raised, ¾-inch high, for two rectangular base switches or receptacles.

7317	52-C-18	50	36

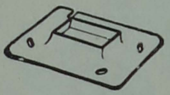
No. 7317-B. Steel cover, raised, 1-inch high, for two rectangular base switches or receptacles.

7317-B	52-C-19	25	37

No. 7318. Steel cover, raised, 1¼ inches high, for two rectangular base switches or receptacles.



7318	52-C-21	25	50



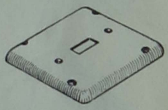
No. 7322. Steel cover, raised, for French fixtures 1x2 inch opening. ⅞-inch high.

7322	52-C-57	25	45

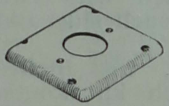
4-INCH SQUARE COVERS FOR EXPOSED WORK

For one toggle switch.

Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7370	⅛	16	25	25
7371	½	14	25	48



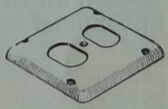
For one single receptacle.



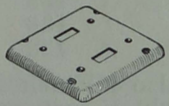
Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7372	⅛	16	25	25
7373	½	14	25	48

For one duplex receptacle.

Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7374	⅛	16	25	25
7375	½	14	25	48



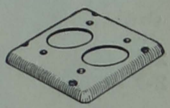
For two toggle switches.



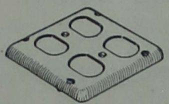
Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7376	⅛	16	25	25
7377	½	14	25	48

For two single receptacles.

Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7378	⅛	16	25	25
7379	½	14	25	48



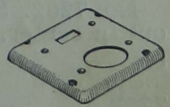
For two duplex receptacles.



Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7380	⅛	16	25	25
7381	½	14	25	48

For one toggle switch and one single receptacle.

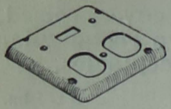
Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7382	⅛	16	25	25
7383	½	14	25	48



AUSTIN OUTLET BOXES AND COVERS

Galvanized—Enameled

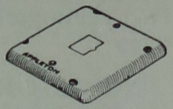
4-INCH SQUARE COVERS FOR EXPOSED WORK



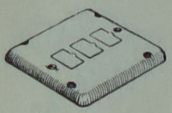
For one toggle switch and one duplex receptacle.

Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7384	⅛	16	25	25
7385	½	14	25	48

For one P&S Despard, Bryant "IL" Hubbell and Arrow-H&H wiring devices.



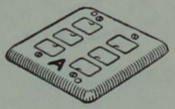
Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7386	⅛	16	25	26



For three P&S Despard, Bryant "IL" Hubbell and Arrow-H&H wiring devices.

Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7388	⅛	16	25	28

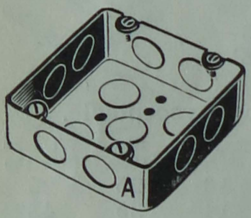
For Six P&S Despard, Bryant "IL" Hubbell and Arrow-H&H wiring devices.



Cat. No.	Depth Cover	Gauge Steel	Std. Pkg.	Wt. Lbs. Per 100
7390	⅛	16	25	33

4$\frac{11}{16}$-INCH SQUARE BOXES

Galvanized Finish Only



2-½ box, 4$\frac{11}{16}$ inches square, 1½ inches deep, ½-inch knockouts. 2-¾ box, 1½ inches deep, ¾-inch knockouts. Furnished with two knockouts in each side and five in bottom.

2-D-½ box, 2⅛ inches deep, ½-inch knockouts. 2-D-¾ box, 2⅛ inches deep, ¾-inch knockouts. 2-D-1 box, 2⅛ inch deep, 1-inch knockouts.

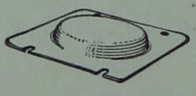
Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
2-½	72151-½	50	110
2-¾	72151-¾	50	110
2-D-½	72171-½	25	138
2-D-¾	72171-¾	25	138
2-D-1	72171-1	25	138

2-X-½ and ¾ extension rings are also 4$\frac{11}{16}$ inches square and 1½ inches deep, with eight ½-inch or ¾-inch knockouts in sides.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
2-X-½	73151-½	25	84
2-X-¾	73151-¾	25	84

COVERS FOR 4$\frac{11}{16}$ INCH SQUARE BOXES

No. 7201. Steel cover, raised, closed, ⅝-inch high.



Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
7201	72-C-2	25	56

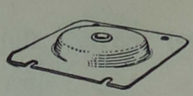
No. 7202. Steel cover raised with ½-inch knockout in center.

Cat. No.	Universal Key No.	Std. Pkg.	Wt. Lbs. Per 100
7202	72-C-7	25	45

AUSTIN OUTLET BOXES AND COVERS

Galvanized Finish Only

COVERS FOR 4$\frac{11}{16}$-INCH SQUARE BOXES

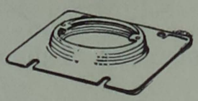


No. 7202-A. Steel cover, raised, ⅝-inch high with ⅜-inch drawn steel hole for drop cord work.

7202-A	72-C-12	25	56

No. 7203. Steel cover, flat, blank.

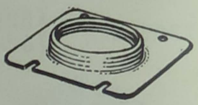
7203	72-C-1	25	48



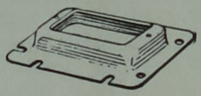
No. 7204. Steel cover, raised, open, with ears drilled and tapped 2$\frac{23}{32}$ inches center to center, to take 3¼-inch covers. (No. 7700 series.)

7204	72-C-3	25	44

No. 7205. Steel cover, raised, open, ⅝-inch high.



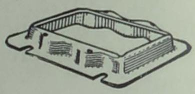
7205	72-C-48	25	44



No. 7206. Steel cover, raised, ¾-inch high, for one rectangular base switch or receptacle.

7206	72-C-14	25	50

No. 7207. Steel cover, raised, ¾-inch high, for two rectangular base switches or receptacles.

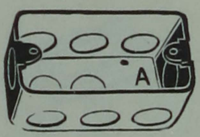


7207	72-C-18	25	42

All 7200 series of covers fit any standard 4$\frac{11}{16}$-inch square boxes.

AUSTIN BROWNIE CONDUIT BOXES

NOS. 500, 500-S AND 500-SS



No. 500. Furnished with three knockouts in each side, one in each end and two in bottom for ½-inch conduit. For ¾-inch conduit, two knockouts in one side, one in opposite side, one in each end, and two in bottom.

Cat. No.	Dimensions of Box, Inches Length	Width	Depth	Std. Pkg.	Wt. Lbs. Std. Pkg.
500-½	4	2⅛	2⅛	50	69
500-¾	4	2⅛	2⅛	50	69

No. 500-S. Furnished with three ½-inch knockouts in each side, one in each end and two in bottom. Makes an ideal box for flush switches and receptacles. Four fixture stud holes in bottom, thus allowing the box to be used for bracket outlets.

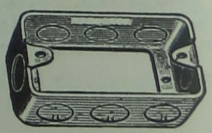
500-S	4	2⅛	1⅞	50	65

No. 500-SS. Same as 500-S with difference only in depth.

500-SS	4	2⅛	1½	50	54

NO. 500-X EXTENSION RING

Three ½-inch knockouts in opposite sides, and one ½-inch knockout in each end.

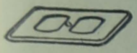


Cat. No.	Dimensions of Box, Inches Length	Width	Depth	Std. Pkg.	Wt. Lbs. Std. Pkg.
500-X	4	2⅛	1⅞	50	40

AUSTIN BROWNIE CONDUIT BOX COVERS AND BOXES

Galvanized Finish Only

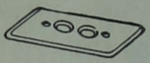
FOR NOS. 500, 500-S AND 500-SS



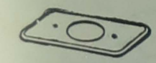
No. 510-C. Steel cover, flat, for double plug receptacle.

Cat. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
510-C	20	11

No. 537-C. Steel cover, flat, for double push button switches.



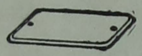
Cat. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
537-C	20	14



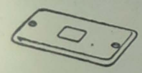
No. 539-C. Steel cover raised for single plug receptacle.

Cat. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
539-C	20	13

No. 540-C. Steel cover, flat.

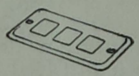


Cat. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
540-C	20	14



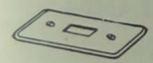
No. 550-C. Steel cover, raised, with one hole strap for P&S Despard, Bryant "IL" or Hubbell "LS" wiring devices.

Cat. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
550-C	20	15



No. 552-C. Steel cover, raised, with three hole strap for P&S Despard, Bryant "IL" or Hubbell "LS" wiring devices. This cover has three knockouts so that one, two or three devices may be used in a single gang cover by removing knockouts to be utilized.

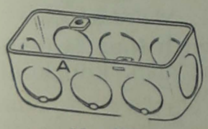
Cat. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
552-C	20	16



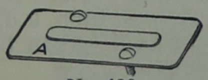
No. 598-C. Steel cover, raised, for toggle switch.

Cat. No.	Std. Pkg.	Wt. Lbs. Std. Pkg.
598-C	20	14

"MIDGET BROWNIE BOXES AND COVERS



No. 400



No. 420

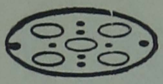
Box is 3¾ inches long, 1½ inches wide, 1½ inches deep. Three knockouts in each side, 1 in each end and 2 in bottom for ½-inch conduit.

Cat. No.	Description	Std. Pkg.	Wt. Lbs. Per 100
400	Midget Brownie Box	50	52
420	Blank Cover, for No. 400 Box	20	14

AUSTIN CEILING PLATES

Galvanized Finish Only

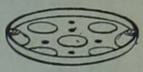
FOR LOOM AND CONDUIT



No. 9-P. Plate four inches in diameter with five ½-inch knockouts.

Cat. No.	Universal Key No.	Type of Clamp	Std. Pkg.	Wt. Lbs. Per 100
9-P	56712	None	100	29

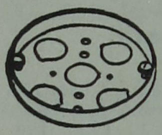
No. 9-PLS. Box 4 inches in diameter, ¼ inch deep, with ears. Five ½-inch conduit knockouts in bottom.



Cat. No.	Universal Key No.	Type of Clamp	Std. Pkg.	Wt. Lbs. Per 100
9-PLS	---------	None	100	37

No. 4-E. Box, 4 inches in diameter, ¾-inch deep. Five knockouts in bottom for ½-inch conduit. With ears.

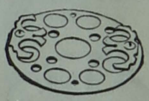
Cat. No.	Universal Key No.	Type of Clamp	Std. Pkg.	Wt. Lbs. Per 100
4-E	56121	None	100	53



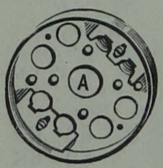
No. 44-E. Box, 4 inches in diameter, ½-inch deep. Five knockouts in bottom for conduit. With ears.

Cat. No.	Universal Key No.	Type of Clamp	Std. Pkg.	Wt. Lbs. Per 100
44-E	56111	None	100	45

No. 702-C. Loom Plate, 3½ inches diameter. Eight knockouts for loom, one knockout for ½-inch conduit.



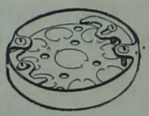
Cat. No.	Universal Key No.	Type of Clamp	Std. Pkg.	Wt. Lbs. Per 100
702-C	36713-C	CL-9	100	26



No. 704-C. Box 3½-inch diameter, ½-inch deep, without ears. Eight knockouts in bottom for loom, one knockout for ½-inch conduit.

Cat. No.	Universal Key No.	Type of Clamp	Std. Pkg.	Wt. Lbs. Per 100
704-C	36114-C	CL-9	100	34

No. 704-CE box, 3½ inches diameter, ½ inch deep, with ears and loom clamps. Eight knockouts in bottom for loom, one knockout for ½-inch conduit.



Cat. No.	Universal Key No.	Type of Clamp	Std. Pkg.	Wt. Lbs. Per 100
704-CE	36113-C	CL-9	100	37

No. 714. Box 3½-inch diameter, ½-inch deep, with ears. Four knockouts in bottom for loom, three knockouts for ½-inch conduit.

Cat. No.	Universal Key No.	Type of Clamp	Std. Pkg.	Wt. Lbs. Per 100
714	36115	None	100	33

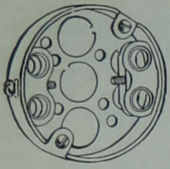
No. 714-C. Same as 714 with clamps.

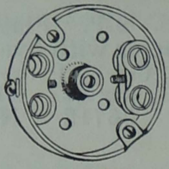
Cat. No.	Universal Key No.	Type of Clamp	Std. Pkg.	Wt. Lbs. Per 100
714-C	36115-C	CL-9	100	37

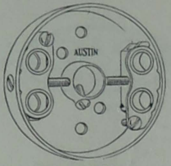
AUSTIN CABLE BOXES

Galvanized—Enameled

FOR STEEL ARMORED CABLE


No. 87X

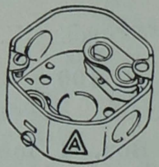

No. 87XS



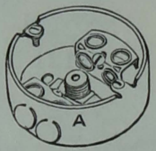
No. 87XG

No. 87-XG box is designed for combination gas and electric work.

Cat. No.	Dia. In.	Dpth. In.	Type Clamp	⅜-In. Fix. Stud	Knockouts				Std. Pkg.	Wt. Lbs. Per 100
					Sides $\frac{21}{32}$	Sides ½	Bottom $\frac{21}{32}$	Bottom ½		
87X	3½	¾	CL-3	No	..	..	4	3	100	46
87XS	3½	¾	CL-3	Yes	..	..	4	..	100	50
87XG	3½	¾	CL-3	......	..	..	4	..	100	50

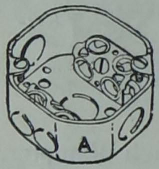


No. 85X
Now Made Round

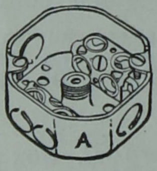


No. 88XS

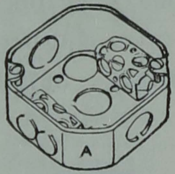
Cat. No.	Dia. In.	Dpth. In.	Type Clamp	⅜-In. Fix. Stud	Knockouts				Std. Pkg.	Wt. Lbs. Per 100
					Sides $\frac{21}{32}$	Sides ½	Bottom $\frac{21}{32}$	Bottom ½		
85X	3½	1½	CL-3	No	..	..	4	1	50	60
85XS	3½	1½	CL-3	Yes	..	..	4	..	50	63
88X	3½	1½	CL-33	No	4	..	4	1	50	65
88XS	3½	1½	CL-33	Yes	4	..	4	..	50	68



No. 89X



No. 89XS

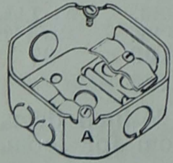


No. 95X

Cat. No.	Dia. In.	Dpth. In.	Type Clamp	⅜-In. Fix. Stud	Knockouts				Std. Pkg.	Wt. Lbs. Per 100
					Sides $\frac{21}{32}$	Sides ½	Bottom $\frac{21}{32}$	Bottom ½		
89X‡	3½	1½	CL-11	No	4	2	4	1	50	65
89XS‡	3½	1½	CL-11	Yes	4	2	4	..	50	68
95X‡	4	1½	CL-11	No	4	2	4	3	50	83
95XS‡	4	1½	CL-11	Yes	4	2	4	2	50	86

Above boxes are equipped with ears to take all standard outlet box covers.

BOXES WITH CL-36 CLAMPS



Allows the cables to enter thru side or bottom knockouts or both without reversing the clamp. Clamp is held clear of the knockouts permitting cables to pass through without forcing.

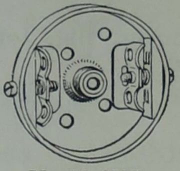
Cat. No.	Dia. In.	Dpth. In.	Type Clamp	⅜-In. Fix. Stud	Knockouts				Std. Pkg.	Wt. Lbs. Per 100
					Sides $\frac{21}{32}$	Sides ½	Bottom $\frac{21}{32}$	Bottom ½		
9-NR	4	1½	CL-36	No	4	2	4	1	50	73
9-NRS	4	1½	CL-36	Yes	4	2	4	..	50	76

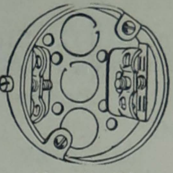
‡These boxes have "Sleeve-Nuts" that prevent the screws from protruding through the back of box.

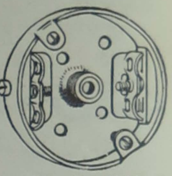
AUSTIN CABLE BOXES

Galvanized—Enameled

FOR NON-METALLIC SHEATHED CABLE, CNX CABLE AND FLEXIBLE NON-METALLIC TUBING LOOM

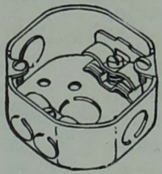

No. 86-CNS

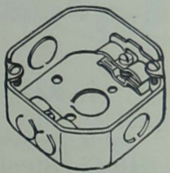

No. 87-CN


No. 87-CNS

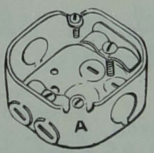
Cat. No.	Depth In.	Type Clamp	⅜-In. Fix. Stud	Knockouts				Std. Pkg.	Wt. Lbs. Per 100
				Sides $\frac{21}{32}$	Sides ½	Bottom $\frac{21}{32}$	Bottom ½		
86-CN	½	CL-39	No	..	..	4	3	100	35
86-CNS	½	CL-39	Yes	..	..	4	..	100	37
87-CN	¾	CL-39	No	..	..	4	3	100	45
87-CNS	¾	CL-39	Yes	..	..	4	..	100	47

Diameter: 3½ inches.

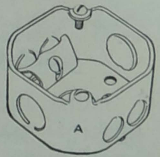

No. 7-OC


No. 9-OC

Cat. No.	Dia. In.	Dpth. In.	Type Clamp	⅜-In. Fix. Stud	Knockouts				Std. Pkg.	Wt. Lbs. Per 100
					Sides $\frac{21}{32}$	Sides ½	Bottom $\frac{21}{32}$	Bottom ½		
7-OC	3½	1½	CL-37	No	4	2	..	1	50	61
7-OCS	3½	1½	CL-37	Yes	4	2	4	..	50	60
9-OC	4	1½	CL-37	No	4	2	4	3	50	73
9-OCS	4	1½	CL-37	Yes	4	2	4	2	50	76



No. 7-BN

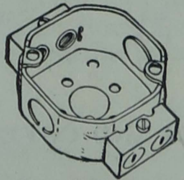


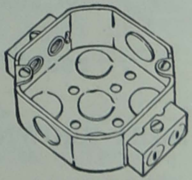
No. 89

Cat. No.	Dia. In.	Dpth. In.	Type Clamp	⅜-In. Fix. Stud	Knockouts				Std. Pkg.	Wt. Lbs. Per 100
					Sides $\frac{21}{32}$	Sides ½	Bottom $\frac{21}{32}$	Bottom ½		
7-BN	3½	1½	CL-7	No	4	2	..	1	50	57
9-BN	4	1½	CL-7	No	4	2	..	1	50	73
89‡	3½	1½	CL-8	No	4	2	4	1	50	57
89-S‡	3½	1½	CL-8	Yes	4	2	4	..	50	60

Above boxes are equipped with ears to take all standard outlet box covers.

WITH NO. CL-18 EXTERNAL CLAMPS


No. 84-X Box


No. 96-X Box

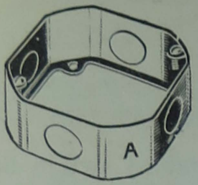
These boxes are furnished with four $\frac{21}{32}$-inch k.o. and two ½-inch k.o. in sides; also, knockouts in bottom as listed in table below.

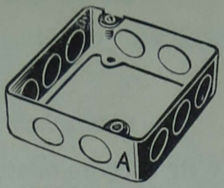
Cat. No.	Size Box Diam.	Size Box Depth	⅜-inch Fix. Stud	K.O. in Bottom	Std. Pkg.	Wt. Lbs. Per 100
84-X	3¼	1½	No	1–½"	50	67
84-XS	3¼	1½	Yes	None	50	77
96-X	4	1½	No	5–½"	50	82
96-XS	4	1½	Yes	4–½"	50	92

‡These boxes have "Sleeve-Nuts" that prevent the screws from protruding through the back of the box.

AUSTIN EXTENSION RINGS

3¼ AND 4-INCH OCTAGONAL AND 4-INCH SQUARE EXTENSION RINGS


79-K-½ Extension


79-S-½ Extension

Octagonal Extension Rings

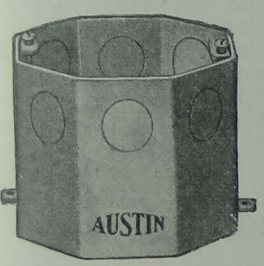
Cat. No.	Universal Key No.	Dimens., In. Diam.	Dimens., In. Dpth.	Size K.O.	Std. Pkg.	Wt.Lbs. Per 100
77-K-½	25151-½	3¼	1½	½	100	43
77-K-¾	25151-¾	3¼	1½	¾	100	43
79-J	57111	4	⅝	....	50	20
79-K-½	55151-½	4	1½	½	50	50
79-K-¾	55151-¾	4	1½	¾	50	50
79-M-½	55171-½	4	2⅛	½	50	64
79-M-¾	55171-¾	4	2⅛	¾	50	64
Square Extension Rings						
79-S-½	53151-½	4	1½	½	50	62
79-S-¾	53151-¾	4	1½	¾	50	62
2-X-½	73151-½	$4\frac{11}{16}$	1½	½	25	84
2-X-¾	73151-¾	$4\frac{11}{16}$	1½	¾	25	84

No. 77-K extension ring fits any standard 3¼-inch octagonal box. Nos. 79-J, 79-K and 79-M extension rings fit any standard 4-inch octagonal box. No. 79-S extension ring fits any standard 4-inch square box. No. 2-X fits any standard $4\frac{11}{16}$-inch square box.

AUSTIN OCTAGONAL CONCRETE BOXES

Galvanized Finish Only

4-INCH OCTAGONAL RINGS



Octagonal rings, having equal sides, with a ½-inch or ¾-inch knockout each, so arranged that the box can be set to provide any combination. Each side is 1⅝ inches wide, providing ample room for locknut and bushing. Four ½-inch and four ¾-inch knockouts. Plate not included.

Nos. OC-2 to OC-6 can also be supplied with a combination of ¾-inch and 1-inch knockouts in sides. Add letter "S" to catalog number, when ordering.

Cat. No.	Universal Key No.	Depth Inches	Diam. Inches	Std. Pkg.	Wt.Lbs. Per 100
OC-1½	54521	1½	4	50	90
OC-2	54531	2	4	50	100
OC-2½	54541	2½	4	50	110
OC-3	54551	3	4	50	134
OC-3½	54561	3½	4	20	145
OC-4	54571	4	4	20	156
OC-5	54581	5	4	20	178
OC-6	54591	6	4	20	200

OCTAGONAL BOTTOM PLATES ONLY

Octagon 4½-inch plates with three ½-inch and two ¾-inch knockouts. Four holes are provided to take any standard fixture stud. If desired plates can be furnished with ⅜-inch or ½-inch studs attached.

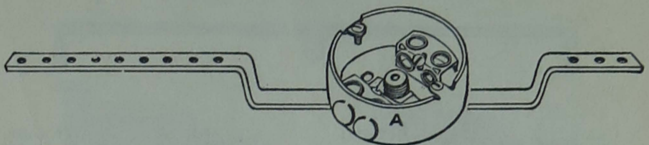
Cat. No.	Description	Std. Pkg.	Wt. Lbs. Per 100
OCP	Plain	50	37
OCP-⅜	⅜-Inch Stud	50	42
OCP-½	½-Inch Stud	50	44

AUSTIN ALL-IN-ONE BOXES

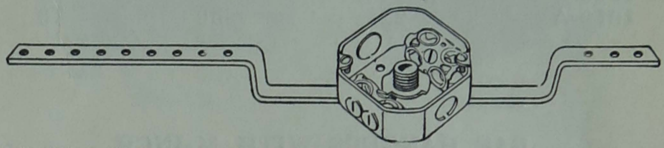
Galvanized—Enameled

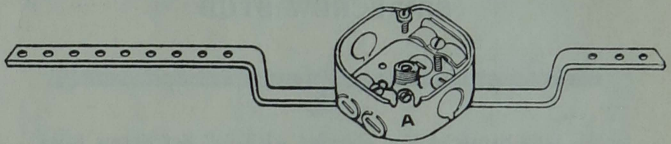
BOXES FURNISHED WITH BAR HANGERS

Using Set Screw Stud

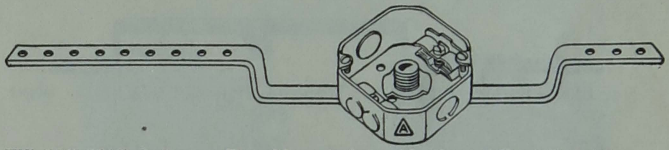


HS-88X 3½″ Round Box Mounted on Shallow Offset Bar Hanger

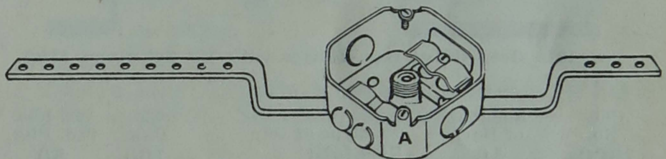

HS-89X 3½″ Octagon Box Mounted on Shallow Offset Bar Hanger



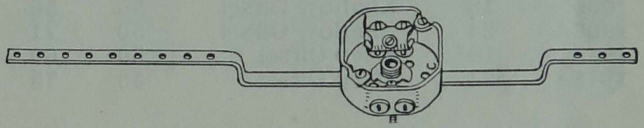
HS-7BN 3½″ Octagon Box Mounted on Shallow Offset Bar Hanger

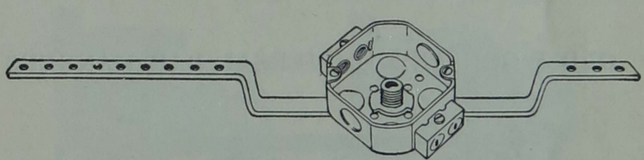


HS-70C 3½″ Octagon Box Mounted on Shallow Offset Bar Hanger



HS-9NR 4″ Octagon Box Mounted on Shallow Offset Bar Hanger


HS-89 3½″ Octagon Box Mounted on Shallow Offset Bar Hanger

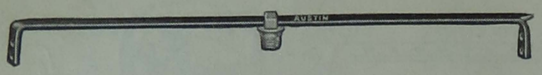

HD-96X 4″ Octagon Box Mounted on Deep Offset Bar Hanger

Cat. No.	Box No.	Diam. In.	Dpth. In.	Type of Clamp	Type Hanger	Std. Pkg.	Wt.Lbs. Per 100
HS-88X	88X	3½	1½	CL-33	Shallow	25	132
HS-85X	85X	3½	1½	CL-3	Shallow	25	132
HS-89X	89X	3½	1½	CL-11	Shallow	25	126
HS-95X	95X	4	1½	CL-11	Shallow	25	138
HD-95X	95X	4	1½	CL-11	Deep	25	144
HS-7BN	7-BN	3½	1½	CL-7	Shallow	25	128
HS-9BN	9-BN	4	1½	CL-7	Shallow	25	138
HD-9BN	9-BN	4	1½	CL-7	Deep	25	144
HS-7OC	7-OC	3½	1½	CL-37	Shallow	25	128
HS-9OC	9-OC	4	1½	CL-37	Shallow	25	138
HD-9OC	9-OC	4	1½	CL-37	Deep	25	144
HS-9NR	9-NR	4	1½	CL-36	Shallow	25	138
HD-9NR	9-NR	4	1½	CL-36	Deep	25	144
HS-89	89	3½	1½	CL-8	Shallow	25	126
HS-84X	84X	3½	1½	CL-18	Shallow	25	113
HS-96X	96X	4	1½	CL-18	Shallow	25	120
HD-96X	96X	4	1½	CL-18	Deep	25	126

AUSTIN BAR HANGERS

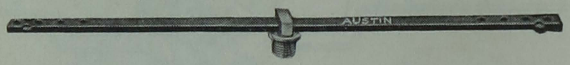
With Set Screw Fixture Stud

NO. 1919 AUSTIN BAR HANGER

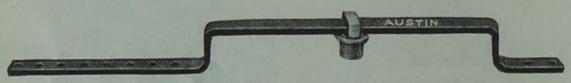


Cat. No.	Length of Bar	Std. Pkg.	Wt. Lbs. Per 100
1919	16½	50	58
1919-A	22½	50	73

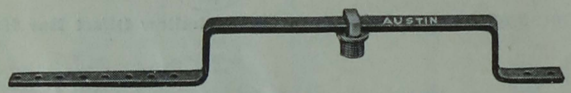
BAR HANGERS WITH ⅜-INCH SET SCREW STUD



No. 1900 Straight Bar Hanger with ⅜" Set Screw Stud



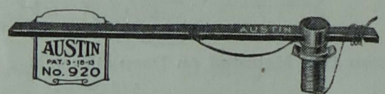
No. 1905 Shallow Offset Bar Hanger with ⅜" Set Screw Stud



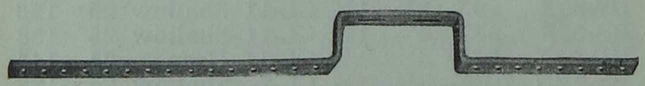
No. 1915 Deep Offset Bar Hanger with ⅜" Set Screw Stud

Cat. No.	Length of Bar	Type of Bar	Std. Pkg.	Wt. Lbs. Std. Pkg.
1900	18	Straight	100	50
1900A	24	Straight	100	65
1905	18	Shallow Offset	50	56
1905A	24	Shallow Offset	50	71
1915	18	Deep Offset	50	60
1915A	24	Deep Offset	50	75

OLD WORK AND UNIVERSAL BAR HANGERS



No. 920 Old Work Hanger with Wing Locknut and Fixture Stud

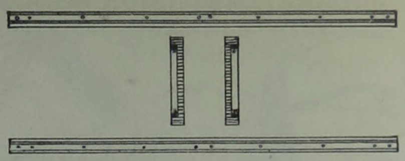


No. 910 Universal Box Cleat without Fixture Stud

Cat. No.	Length of Bar	Type of Bar	Std. Pkg.	Wt. Lbs. Per 100
920	12	Old Work Hanger	100	45
910	21	Box Cleat, no Stud	52	52

On special orders, bar hangers can be furnished in any lengths longer than the above standard lengths at an extra charge of **$1.00** per 100 list for each additional inch.

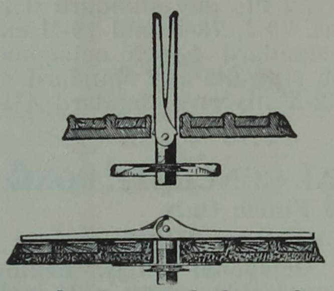
ORIGINAL "KRUSE" SWITCH BOX SUPPORT



Will accommodate any standard switch box of any number of gangs. Only hammer and nails are required for installation. Their use results in an absolutely rigid, permanent, non-corrosive rustproof and fire-proof installation. Standard package, 500 sets.

Cat. No.	Description	Wt. Lbs. Per 100
1925	Two 16½" Strips and Lath Supports	42
1925A	Two 16½" Strips, no Lath Supports	37
1926	Two 18½" Strips and Lath Supports	50
1927	Two 20½" Strips and Lath Supports	55
1928	Two 22½" Strips and Lath Supports	60

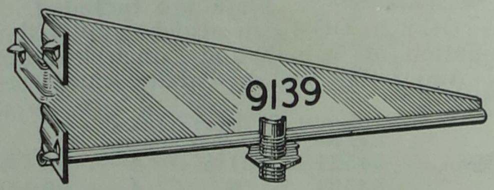
PAINE FIXTURE AND OUTLET BOX HANGERS



Especially adapted for work in tile, metal and lath and plastered walls and ceilings. Contains two wings mounted on ⅜ inch nipple 2½ inches long with a key through the nipple, arranged to lock wings when in open position. When folded, wings are 5½ inches in length and can be inserted through a hole 1⅛ inches diameter. When in attaching position, wings give a spread of 11 inches. There is sufficient room between any two knockouts to allow for BX fittings.

Price Per 100 .... **$40.00**

KEES OUTLET BOX HANGER



For mounting any type of ceiling outlet box and fixture in new or old work.

Attached to side of joist or rafter with three nails or screws. Will support in excess of 70 pounds suspended from extreme end. Easier to install than bar hangers. Stud can be positioned exactly where it is wanted.

Bracket heavy pressed steel; 10 inches long, 3 inches high at nailing end. Lower edge is a ⅜-inch tube on which fixture and stud slides. Complete with fixture stud and cadmium plated, oversized, notched locknut. (Outlet box not included).

Pointed prongs in the three nailing lugs driven into the joist hold hanger in position temporarily. Wireman then has both hands free to fasten the hanger permanently with nail or screws.

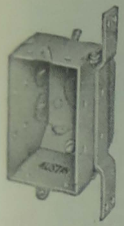
Cat. No.	Length Inches	Carton	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
9139	10	50	50	40	**$18.00**

AUSTIN SWITCH BOXES

Galvanized—Enameled

WITH TYPE "A" SIDE MOUNTING BRACKET

No Lath Support


Type LCA

These boxes without lath supports, when nailed to the side of the studding, permit beaver board, wall board, plaster board, etc., to lay absolutely smooth, making a neat appearance and eliminating any bulge on the finished surface. Eliminate notching the studding which was necessary with the conventional type bracket that is nailed on the surface of the studding.

Dimensions: Length, 3 inches; width, 2 inches; depth, as listed.

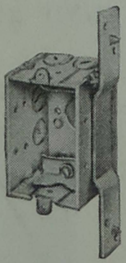
Cat. No.	Dpth. In.	Type of Clamp	Knockouts			Wt. Lbs. Per 100
			Ends	Sides	Bottom	
LA	2¼	None	2–21/32	2–21/32	1–½	68
LCA	2¼	CL-5	2–21/32	2–21/32	1–½	71
LRA	2¼	CL-30	2–21/32	2–21/32	1–½	78
NXA	2	CL-38	2–¾x11/16	2–21/32	1–½	75
CNXA	2	CL-37	2–21/32	2–21/32	1–½	75
CNXDA	2½	CL-37	2–21/32	2–21/32	1–½	87
BXFA	2½	CL-13	2–21/32	2–21/32	4–21/32, 1–½	86
NRDA	2½	CL-36	2–21/32	2–21/32	1–½	90
CMA	2½	None	1–½	2–½	1–½	81

Standard package, 50.

SWITCH AND RECEPTACLE BOXES

Galvanized Finish Only

For Use with Non-Metallic Sheathed Cable


Type NXA

The floating clamp in these boxes is held clear of Pri-Out for easy insertion of cable. An entirely new mounting ear permitting 1⅛-inch adjustment. The unique shaped Pri-Out takes all sizes of cable up to and including two and three conductor No. 10. No rough edge to injure the braid. Indenture in clamp and bottom of box holds cable rigidly and permanently in place. Knockouts in bottom for fixture stud or bar hanger. Ample wiring room. By removing sides boxes can be built into any number of gangs.

Cat. No.	Dimens., Inches			Type of Clamp	Knockouts			Std. Pkg.	Lbs. Per 100
	L.	W.	D.		Ends	S.des	Bot'm		
NX	3	2	2	CL-38	2–¾x11/16	2–21/32	1–½	50	64

With Side Mounting Bracket

NXA	3	2	2	CL-38	2–¾x11/16	2–21/32	1–½	50	75

With BR-1 Side Mounting Bracket

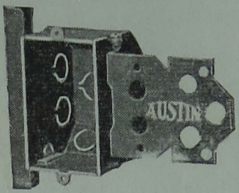
NXBR	3	2	2	CL-38	2–¾x11/16	2–21/32	1–½	50	86

AUSTIN SWITCH BOXES

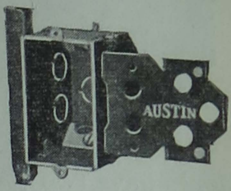
Galvanized—Enameled

BRACKET SWITCH BOXES WITH LATH SUPPORT

Gangable



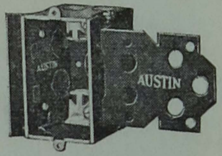
Type LB



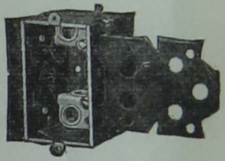
Type LCB

Dimensions: Length, 3 inches; width, 2 inches; depth, as listed. Standard package, 50.

Cat. No.	Type of Box	Depth In.	Type of Clamp	KNOCKOUTS Ends 21/32″	Sides 21/32″	Bottom 21/32″	½″	Wt. Lb. Per 100
LB	L	2¼	None	2	2	..	1	77
LCB	LC	2¼	CL-5	2	2	..	1	80

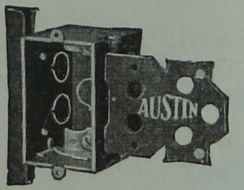


Type BXFB

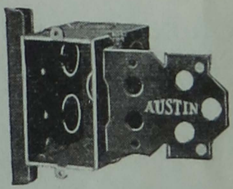

Type BXVB

Dimensions: Length, 3 inches; width, 2 inches; depth, as listed. Standard package, 50.

Cat. No.	Type of Box	Depth In.	Type of Clamp	KNOCKOUTS Ends 21/32″	Sides 21/32″	Bottom 21/32″	½″	Wt. Lb. Per 100
BXFB	BXF	2½	CL-13	2	2	4	1	95
BXSFB	BXSF	2	CL-13	2	2	4	1	83
BXVB	BXV	2½	CL-11	2	2	4	1	97



Type BNB



Type CB

Dimensions: Length, 3 inches; width, 2 inches; depth, as listed. Standard package, 50.

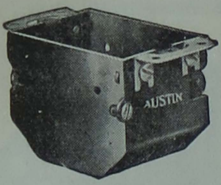
Cat. No.	Type of Box	Depth In.	Type of Clamp	KNOCKOUTS Ends 21/32″	Sides 21/32″	Bottom 21/32″	½″	Wt. Lb. Per 100
BNB	BN	2½	CL-7	2	2	4	1	94
BNSB	BNS	2	CL-7	2	2	4	1	82
LRB	LR	2¼	CL-30	2	2	..	1	87
CNXB	CNX	2	CL-37	2	2	..	1	84
CNXDB	CNXD	2½	CL-37	2	2	..	1	96
CSB	CS	2	None	..	..	..	..	78
CMB	CM	2½	None	..	..	..	..	90
CB	C	2¾	None	..	..	..	..	97

CSB, CMB and CB boxes have one ½-inch knockout in ends, two ½-inch knockouts in sides, and one ½-inch in bottom for conduit.

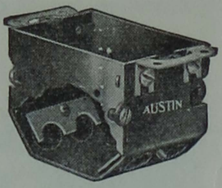
AUSTIN SECTIONAL SWITCH BOXES

Galvanized—Enameled

FOR NON-METALLIC FLEXIBLE TUBING (Loom)



Type L Box



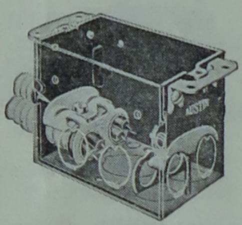
Type LC Box

Boxes have two $\frac{21}{32}$-inch knockouts in ends; two $\frac{21}{32}$-inch knockouts in sides; and one ½-inch knockout in bottom.

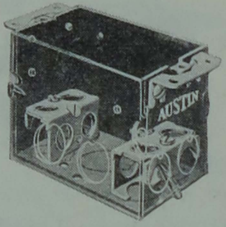
Cat. No.	Dimensions, Inches Length	Width	Depth	Type of Clamps	Std. Pkg.	Wt. Lbs. Per 100
L	3	2	2¼	None	50	57
LC	3	2	2¼	CL-5	50	60
***LE**	3	2	2¼	None	50	57
***LCE**	3	2	2¼	CL-5	50	60

*Has one screw adjusting ears.

FOR STEEL ARMORED CABLE



Type BXF, BXSF with CL-13 Clamps

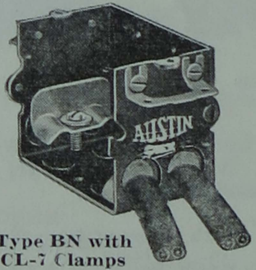


Type BXV with CL-11 Clamps

Boxes have two $\frac{21}{32}$-inch knockouts in ends; two $\frac{21}{32}$-inch knockouts in sides; and one ½-inch knockout in bottom.

Cat. No.	Dimensions, Inches Length	Width	Depth	Type of Clamps	Std. Pkg.	Wt. Lbs. Per 100
BXF	3	2	2½	CL-13	50	75
BXSF	3	2	2	CL-13	50	63
BXV	3	2	2½	CL-11	50	77

FOR NON-METALLIC SHEATHED CABLE, CNX CABLE AND FLEXIBLE NON-METALLIC TUBING (LOOM)



Type BN with CL-7 Clamps

BN and BNS boxes have two $\frac{21}{32}$-inch knockouts in ends and in sides; four $\frac{21}{32}$-inch and one ½-inch conduit knockouts in bottom. BXMS has two $\frac{21}{32}$-inch in end corners.

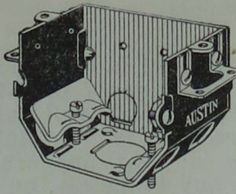
Cat. No.	Dimensions, Inches Length	Width	Depth	Type of Clamps	Std. Pkg.	Wt. Lbs. Per 100
BN	3	2	2½	CL-7	50	74
BNS	3	2	2	CL-7	50	62
BXMS‡	3	2	1½	CL-7	50	56

‡Not gangable.

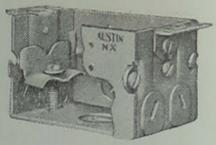
AUSTIN SECTIONAL SWITCH BOXES

Galvanized—Enameled

FOR NON-METALLIC SHEATHED CABLE CNX CABLE AND FLEXIBLE NON-METALLIC TUBING (LOOM)



Type LR with Two-Screw Ears
Type LRE with One-Screw Ears
with CL-30 Clamps



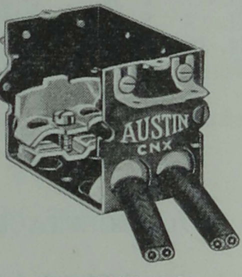
Type NX with CL-38 Clamps

Switch boxes with clamps that protect the braid of the cable from the rough edge of the knockout. Braid of cable need not be removed until after cable is clamped in place.

Dimensions: Length, 3 inches; width, 2 inches; depth, as listed.

Cat. No.	Depth In.	Type of Clamp	Knockouts Ends $\frac{21}{32}$"	Sides $\frac{21}{32}$"	Bottom $\frac{21}{32}$"	½"	Std. Pkg.	Wt. Lbs. Per 100
LR	2¼	CL-30	2	2	..	1	50	67
***LRE**	2¼	CL-30	2	2	..	1	50	67
NX	2	CL-38	2	2	..	1	50	64

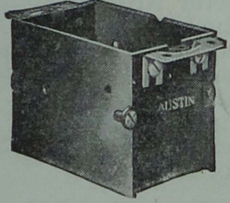
*Has one-screw adjustable ears.



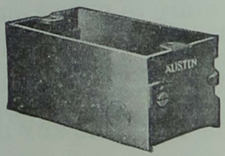
Type CNX with CL-37 Clamps

Cat. No.	Depth In.	Type of Clamp	Knockouts Ends $\frac{21}{32}$"	Sides $\frac{21}{32}$"	Bottom $\frac{21}{32}$"	½"	Std. Pkg.	Wt. Lbs. Per 100
CNX	2	CL-37	2	2	..	1	50	64
CNXD	2½	CL-37	2	2	..	1	50	76

SECTIONAL SWITCH BOXES FOR CONDUIT



Type C, CM, CS Box



Type RC Box

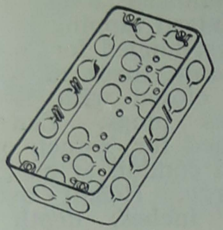
Cat. No.	Dimens., In. L.	W.	Dpth.	Knockouts Ends	Sides	Bottom	Std. Pkg.	Wt. Lbs. Per 100
CS	3	2	2	1–½"	2–½"	1–½"	50	58
***CM**	3	2	2½	1–½"	2–½"	1–½"	50	70
***CM-Sp.**	3	2	2½	1–½"	2–½"	2–½"	50	70
***C**	3	2	2¾	1–½"	2–½"	1–½"	50	77
***CD**	3	2	3½	1–½"	2–½"	1–½"	50	94
SC	4	2	1½	1–½"	....	1–½"	50	52
RC	4	2	1½	1–½"	2–$\frac{21}{32}$"	1–½"	50	63

*Can be furnished with ¾-inch knockouts.

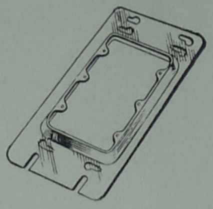
AUSTIN SWITCH BOXES

Galvanized Finish Only

SOLID DRAWN GANG CONDUIT SWITCH BOXES



No. 33-GB Standard 3-Gang Box with Slots for Low Voltage Partitions.



No. 22-GSC, ¾-inch Deep 3-Gang Cover.

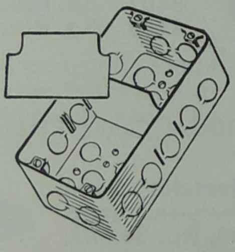
Boxes furnished with ½-inch or ¾-inch knockouts. Boxes with ½-inch knockouts will be furnished unless otherwise specified.

Each gang box cover will also fit the next smaller size box, i.e.—a four-gang cover will fit either a three or four-gang box.

Standard Type

Cat. No.				KNOCKOUTS			Wt.	Lbs.
Box Only 1¾" Deep	Cover Only ¾" Deep	No. of Gangs	Lgth. In.	Sides ½" or ¾"		Ends ½" or ¾"	Per Box Only	100 Cover Only
32-GB	**32-GSC**	2	6 13/16	5	4	2	160	70
33-GB	**33-GSC**	3	8⅝	5	5	2	200	80
34-GB	**34-GSC**	4	10½	8	6	2	230	85
35-GB	**35-GSC**	5	12¼	9	8	2	250	100
36-GB	**36-GSC**	6	14 1/16	11	9	2	320	110
37-GB	**37-GSC**	7	15 15/16	10	10	2	350	125
38-GB	**38-GSC**	8	17⅝	12	12	2	400	140
39-GB	**39-GSC**	9	19½	14	12	2	450	160
....	**310-GSC**	10	----	----	----	--	-----	170

LVP Low Voltage Partition to fit above standard boxes with covers.



No. 33-DB Deep 3-Gang Box with One Low Voltage Partition Installed.

Boxes furnished with ½-inch or ¾-inch knockouts. Boxes with ½-inch knockouts will be furnished unless otherwise specified.

Each gang box cover will also fit the next smaller size box, i.e.—a four-gang cover will fit either a three or four-gang box.

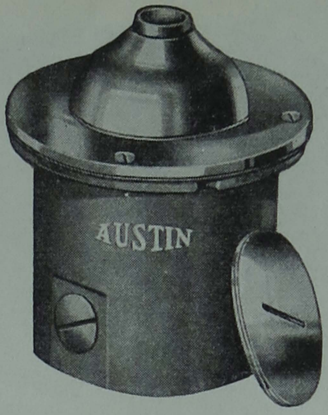
Deep Type

Cat. No.				KNOCKOUTS			Wt.	Lbs.
Box Only 2½" Deep	Cover Only ¾" Deep	No. of Gangs	Lgth. In.	Sides ½" or ¾"		Ends ½" or ¾"	Per Box Only	100 Cover Only
32-DB	**32-GSC**	2	6 13/16	5	4	2	243	70
33-DB	**32-GSC**	3	8⅝	5	5	2	286	80
34-DB	**32-GSC**	4	10½	8	6	2	323	85
35-DB	**32-GSC**	5	12¼	9	8	2	375	100
36-DB	**32-GSC**	6	14 1/16	11	9	2	409	110

LVPD Low Voltage Partition to fit above Deep boxes with covers.

AUSTIN FLOOR BOXES

NO. 100 NON-ADJUSTABLE FLOOR BOX



No. 100 Box

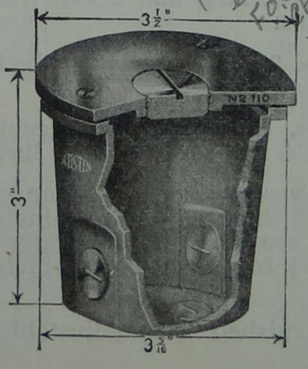
This box has proven the most popular on the market. Where an adjustable box is unnecessary it has no equal. Each box has two ½-inch or ¾-inch drilled and tapped holes in sides and one in bottom, but plugs are furnished so that holes not in use can be hermetically sealed. Boxes are galvanized inside and out.

Cat. No.	Description	Std. Pkg.	Wt. Lbs. Each
100	Box 3½ in. diameter, 3⅛ in. deep complete with receptacle, brass bell nozzle and sealing plug	25	2½
101	Iron box only		1¼
102	Brass cover plate with 2-in. flush plug	$60.00 Net Value	5/16
103	Brass flush 2-in. plug for cover		⅛
103-S	Brass flush 2-in. plug with ½-in. plug in center		⅛
104	Brass bell nozzle		⅛
105	10 amp., porcelain receptacle mounted on flat steel ring which also serves as a seat for the bell nozzle or flush brass plug		½
106	10-amp., 3-wire receptacle and plug mounted on flat steel ring		¾
107	Large cork gasket		1/16

NO. 110 NON-ADJUSTABLE FLOOR BOX

Furnished with solid brass cover and flush sealing plug only. Same number of outlets as the No. 100. Cover is drilled and tapped for ½-inch conduit.

1 55/ea Fob Chicago

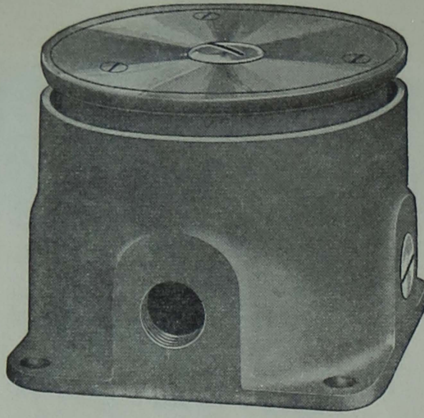


Box Complete with Solid Brass Cover and Plug

Cat. No.	Std. Pkg.	Wt. Lbs. Each
110	25	1¾
Iron Box Only		
101	----	1¼
Solid Brass Cover with ½-Inch Removable Plug		
109	----	7/16
Large Rubber Gasket		
107	----	1/16

AUSTIN ADJUSTABLE FLOOR BOXES

NOS. 8400 AND 8401

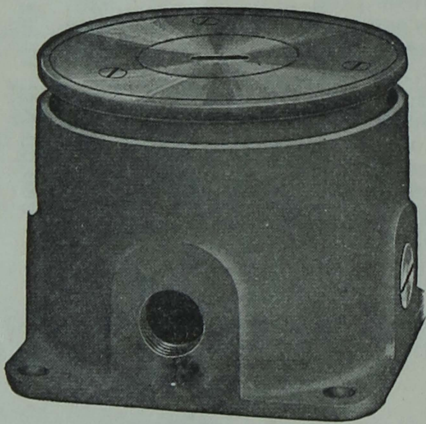


No. 8400

No. 8400 box complete consists of No. 8402 box body, No. 8405 combination adjusting ring and brass flange ring, No. 8409 brass cover plate with No. 8471—½-in. brass plug, No. 8411 rubber gasket, and 1 can No. 8476 sealing cement. Weight 5 lbs.

No. 8400D same as No. 8400 except furnished with No. 8404 deep box body. Weight 7¾ lbs.

No. 8400S shallow type. Same as No. 8400 except minimum height is only 3¼ in. Weight 5 lbs.



No. 8401

No. 8401 box complete consists of No. 8402 box body, No. 8405 combination adjusting ring and brass flange ring, No. 8410 brass cover plate with No. 8472 2-in. brass plug, No. 8414 steel plate forming seat for No. 8411 gasket, and 1 can No. 8476 cement. Weight 5 lbs.

No. 8401D same as No. 8401 except furnished with No. 8404 deep box body. Weight 7¾ lbs.

No. 8401S shallow type. Same as 8401 except minimum height is only 3¼ inches. Weight 5 lbs.

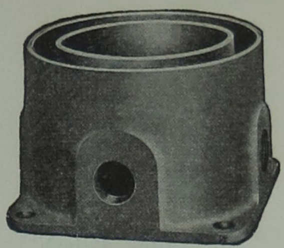
Standard boxes: 4-in. cover plates, ⅛-inch flange ring; minimum height 3¾ inches. Four ½-inch conduit holes, 3 of which are plugged with watertight brass plugs. Tapped for ¾-inch or 1-inch conduit at no extra cost.

Receptacles are not furnished with adjustable floor boxes.

AUSTIN ADJUSTABLE FLOOR BOXES

PARTS FOR NOS. 8400 AND 8401

Box Bodies

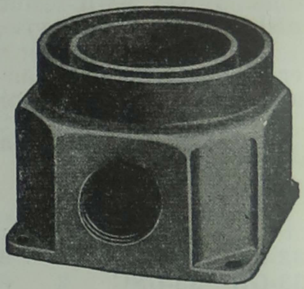


No. 8402

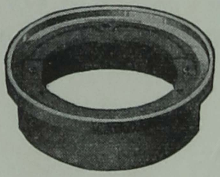
Standard box body. Standard tapping is four holes, tapped for ½-inch conduit, three of which are closed with ½-inch brass plugs. Can be tapped for ¾-inch or 1-inch conduit at no extra charge. Height overall 3 1/16 inches, depth of groove 1 inch, opening in top 3¼ inches diameter. Weight 3½ lbs.

No. 8404

Special deep box body. Can be tapped for conduit up to 1½ inches with room for bushing inside, or for 2-inch conduit without room for bushing, at no extra cost. Height overall 3¾ in.; depth of groove 1 in.; opening in top 3 inches diameter. Weight 6¼ pounds.



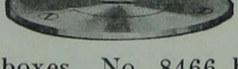
COMBINATION ADJUSTING RING AND BRASS FLANGE RING



Cat. No.	Description	Overall Hght.In.	Wt. Lbs. Each
8405	Std. Ring	1½	1
8406	Sp. Ring	2⅛	1¼
8407	Sp. Ring	2¾	1½
8408	Sp. Ring	3 7/16	1¾

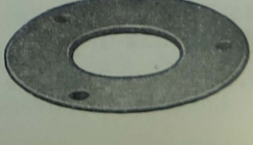
Brass Cover Plates

No. 8409. Diameter 4 in., with No. 8471—½-in. brass plug for No. 8400, No. 8400D, and No. 8400S floor boxes. No. 8465 or No. 8467 brass nozzles for ½-in. pipe extension may be used with this cover plate. Weight 10 ounces.



No. 8410. Diameter 4 in. with No. 8472—2-in. flush brass plug for No. 8401, No. 8401D and No. 8401S floor boxes. No. 8466 brass bell nozzle may be used with this cover plate. Weight 12 ounces.

Rubber Gasket



No. 8411. Diameter 4 inches. For use with Nos. 8400, 8400D, 8401, and 8401D floor boxes. Weight 1 ounce.

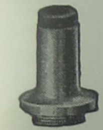
AUSTIN ADJUSTABLE FLOOR BOXES

PARTS FOR NOS. 8400 AND 8401

NOZZLES

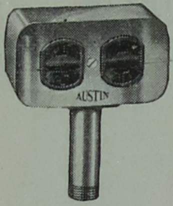
No. 8465 brass drip nozzle for two outlets from same box, for use with No. 8409 plate or Nos. 8400, 8400D and 8400S boxes. Weight 4 ounces.

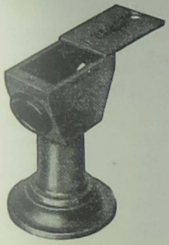
No. 8466 brass bell nozzle for use with No. 8410 plate or Nos. 8401, 8401D and 8401S boxes. Weight 3 ounces.



No. 8467 brass stem nozzle for use with No. 8409 plate or Nos. 8400, 8400D and 8400S boxes. Weight 3 ounces.

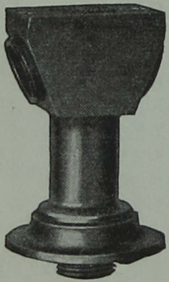
No. 8468 cast brass combination duplex nozzle for use with No. 8409 plate or Nos 8400, 8400D and 8400S boxes. Will fit any ½-inch conduit opening. Weight 1 pound.





No. 8469 ½-inch telephone nozzle for use with No. 8409 plate or Nos. 8400, 8400D and 8400S boxes. Will fit any ½-inch conduit opening. Has removable top to permit easy wiring. Weight 10 ounces.

No. 8470 ¾-inch telephone nozzle. Will fit any ¾-inch conduit opening, otherwise same as No. 8469. Weight 14 ounces.



BRASS PLUGS AND SEALING CEMENT

No. 8471 ½-inch brass plug for use with No. 8409 plate. Weight 1 ounce.

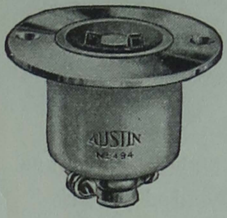
No. 8472 2-inch brass plug for use with No. 8410 plate. Weight 2 ounces.

No. 8472-S 2-inch flush brass plug with ½-inch plug in center for use with No. 8410 plate. Wt. 2 ounces.

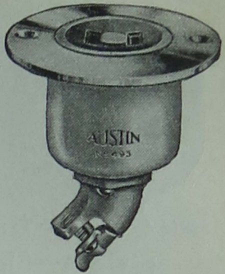
No. 8476 carton sealing cement for one floor box. Weight 4 ounces.

AUSTIN FLOOR BOXES

UNIVERSAL UTILITY BOXES



No. 494
Straight Type



No. 495 Angle Type

Box body — galvanized. Cover plate — brush brass.

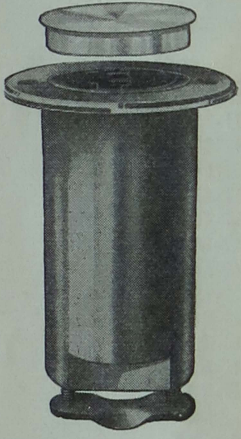
Cat. No.	Dia., In. Box Body	Dia., In. Cover Plate	Type	Carton	Std. Pkg.	Wt. Oz. Each
494	1½	2½	Straight	1	50	10
495	1½	2½	45° Angle	1	50	11

NO. 499 MIDGET FLOOR BOX

Box complete with 10-ampere receptacle and cover plate. With ½-inch drilled and tapped hole in bottom with loom clamp. For rigid conduit, flexible steel conduit, armored cable, non-metallic sheathed cable or loom.

To install simply drill a 1⅝-inch hole in the floor, drop the box in place and screw flanged plate to floor using flat head brass screws provided for this purpose. It is not necessary to recess the floor.

Cat. No.	Height Box	Std. Pkg.	Wt. Oz. Each
499	3	25	11



No. 499 with Cover Plate

AUSTIN DRIV-ON LOCKNUTS

The deep cut notches permit locknuts to be easily tightened in awkward positions by driving them on with a screw driver. Made of heavy steel, straightened before tapping so that the threads are perfect and true to gauge.

Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 1000
3130	⅜	100	1000	12
3131	½	100	2500	13
3132	¾	100	1000	20
3133	1	50	500	32
		Malleable Iron		
3134	1¼	50	200	65
3135	1½	50	100	85
3136	2	25	50	120
3137	2½	10	30	200
3138	3	5	25	380
3139	3½	5	25	440
3140	4	5	25	500
3141	4½	2	10	1050
3142	5	2	10	1300
3143	6	2	10	1800

AUSTIN INSULATING END BUSHINGS
THREADED TYPE INSULATING BUSHINGS

Style A—Shallow Type

Style B—Deep Type

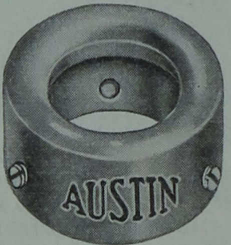
Style A—Shallow Threaded Type

Cat. No.	Size Inches	Dimens., Inches Depth	Dimens., Inches Diam.	Std. Pkg.	Wt. Lbs. Per 100
A-11	½	½	1⅛	50	1½
A-12	¾	½	1⁵⁄₁₆	50	1½
A-13	1	⁹⁄₁₆	1⅝	50	2½
A-14	1¼	⁹⁄₁₆	2	10	5
A-15	1½	⁹⁄₁₆	2¼	10	5
A-16	2	⁹⁄₁₆	2¾	10	7½
A-17	2½	¾	3¼	5	15
A-18	3	¾	3⅞	5	15
A-19	3½	¾	4⅜	5	20
A-20	4	¾	5	5	25
A-21	4½	¾	5½	1	30
A-22	5	¾	6	1	35
A-23	6	¾	7	1	40

Style B—Deep Threaded Type

Cat. No.	Size Inches	Dimens., Inches Depth	Dimens., Inches Diam.	Std. Pkg.	Wt. Lbs. Per 100
B-11	½	¾	1⅛	50	2
B-12	¾	¾	1¹⁵⁄₁₆	50	2½
B-13	1	⅞	1⅝	50	5½
B-14	1¼	⅞	2	10	7½
B-15	1½	⅞	2¼	10	7½
B-16	2	¹⁵⁄₁₆	2¾	10	10
B-17	2½	1¼	3¼	5	20
B-18	3	1¼	3⅞	5	20
B-19	3½	1¼	4⅜	5	25
B-20	4	1¼	5	5	25
B-21	4½	1¼	5½	1	50
B-22	5	1¼	6	1	50
B-23	6	1¼	7	1	60

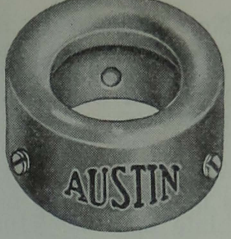
STYLE BS—DEEP THREADLESS TYPE INSULATING BUSHINGS


Style BS—Set Screw Type

For Heavy Wall Conduit

Cat. No.	Size Inches	Dimens., Inches Depth	Dimens., Inches Diam.	Std. Pkg.	Wt. Lbs. Per 100
BS-11	½	¾	1⅛	50	2
BS-12	¾	¾	1¹⁵⁄₁₆	50	2½
BS-13	1	⅞	1⅝	50	5½
BS-14	1¼	⅞	2	10	7½
BS-15	1½	⅞	2¼	10	7½
BS-16	2	¹⁵⁄₁₆	2¾	10	10
BS-17	2½	1¼	3¼	5	20
BS-18	3	1¼	3⅞	5	20
BS-19	3½	1¼	4⅜	5	25
BS-20	4	1¼	5	5	25
BS-21	4½	1¼	5½	1	50
BS-22	5	1¼	6	1	50
BS-23	6	1¼	7	1	60

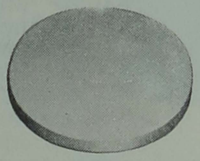
AUSTIN INSULATING END BUSHINGS
STYLE TBS—DEEP THREADLESS TYPE INSULATING BUSHINGS


Style TBS—Set Screw Type

For Thin Wall Conduit

Cat. No.	Size Inches	Dimens., Inches Depth	Dimens., Inches Diam.	Std. Pkg.	Wt. Lbs. Per 100
TBS-11	½	¾	1⅛	50	2
TBS-12	¾	¾	1⁵⁄₁₆	50	2½
TBS-13	1	⅞	1⅝	50	5½
TBS-14	1¼	⅞	2	10	7½
TBS-15	1½	⅞	2¼	10	7½
TBS-16	2	¹⁵⁄₁₆	2¾	10	10

INSULATING DISCS FOR BUSHINGS



Insulating Discs can be drilled, when it is desired, to permit separation of cables where they come out of the conduit.

Cat. No.	Size Inches	Dimens., Inches Thickness	Dimens., Inches Diam.	Std. Pkg.	Wt. Lbs. Per 100
D-11	½	⅛	⁴⁵⁄₆₄	50	-------
D-12	¾	⅛	⁵⁹⁄₆₄	50	-------
D-13	1	⅛	1⁵⁄₃₂	50	-------
D-14	1¼	⅛	1½	10	-------
D-15	1½	⅛	1⁴⁷⁄₆₄	10	-------
D-16	2	⅛	2¹³⁄₆₄	10	-------
D-17	2½	³⁄₁₆	2⁴¹⁄₆₄	5	-------
D-18	3	³⁄₁₆	3¹⁷⁄₆₄	5	-------
D-19	3½	³⁄₁₆	3⁴⁹⁄₆₄	5	-------
D-20	4	³⁄₁₆	4¹⁷⁄₆₄	5	-------
D-21	4½	³⁄₁₆	------	1	-------
D-22	5	----	------	1	-------
D-23	6	----	------	1	-------

MALE TYPE—INSULATING BUSHINGS

Size In.	Dimens., In. Dia.	Dimens., In. Depth A	Dimens., In. Depth B	Std. Pkg.	Without Locknut Cat. No.	Without Locknut Wt. Lbs. Per 100	With Locknut Cat. No.	With Locknut Wt. Lbs. Per 100
½	1⅛	¾	⁷⁄₁₆	100	**M-11**	1½	**ML-11**	3
¾	1⁵⁄₁₆	¾	⁷⁄₁₆	100	**M-12**	2	**ML-12**	5
1	1⅝	⅞	⁹⁄₁₆	100	**M-13**	3	**ML-13**	7
1¼	2	⅞	⁹⁄₁₆	50	**M-14**	6	**ML-14**	14
1½	2¼	⅞	⁹⁄₁₆	50	**M-15**	7	**ML-15**	18
2	2¾	¹⁵⁄₁₆	⁹⁄₁₆	50	**M-16**	8	**ML-16**	26
2½	3¼	1¼	¾	20	**M-17**	20	**ML-17**	45
3	3⅞	1¼	¾	20	**M-18**	25	**ML-18**	60
3½	4⅜	1¼	¾	10	**M-19**	30	**ML-19**	80
4	5	1¼	¾	10	**M-20**	40	**ML-20**	100

AUSTIN RIGID CONDUIT FITTINGS

Thoroughly Galvanized

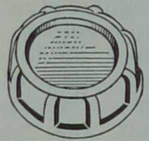
DRIV-ON CONDUIT BUSHINGS

Made of malleable iron. The finger grips are heavy enough to permit tightening with a pipe wrench or screw driver.

Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 1000
3030	⅜	100	1000	15
3031	½	100	2500	23
3032	¾	100	1000	32
3033	1	50	500	62
3034	1¼	20	200	118
3035	1½	20	100	145
3036	2	10	50	200
3037	2½	10	30	350
3038	3	5	25	460
3039	3½	5	25	680
3040	4	5	25	960
3041	4½	2	10	1200
3042	5	2	10	1450
3043	6	2	10	2300

DRIV-ON CAPPED BUSHINGS

Provided with cap for sealing conduit system during construction to keep out dirt, plaster, concrete, etc. Cap is easily pried off when the job is ready to pull in wires. Keeps conduit raceway clean.



CAPPED BUSHING

Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 1000
3231	½	100	2500	25
3232	¾	100	1000	39
3233	1	50	500	90
3234	1¼	25	200	120
3235	1½	10	100	180
3236	2	10	50	200

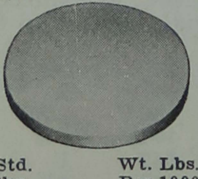
CONDUIT NIPPLES

To be used in connection with conduit coupling to couple conduit to an outlet box or pull box. When this method is pursued the box may be removed at any time without disturbing the conduit.

Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 100
7841	⅜	50	100	2½
7842	½	50	100	4
7843	¾	50	100	5
7844	1	25	50	14
7845	1¼	10	25	24
7846	1½	10	25	30
7847	2	5	10	60
7848	2½	5	10	70
7849	3	2	5	100
7850	3½	2	5	140

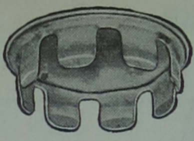
CONDUIT PENNIES

Used with conduit bushings to seal up the conduit during construction. Keeps raceways clean until ready to fish in wires.



Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 1000
180	½	500	1000	4
181	¾	250	500	7
182	1	125	250	11

SNAP-IN BLANKS AND BUSHINGS



No. 150

Snap-in Blanks are used for closing up the knockouts in service or outlet boxes.

Snap-in Bushings — The hole in the ½-inch bushing will take single braid rubber covered wire up to No. 8; ¾-inch will take double braid wire up to No. 4.

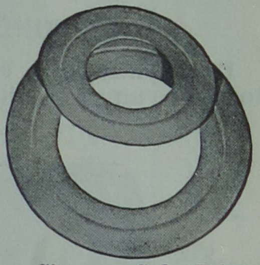
Snap-In Blanks

Cat. No.	Size Inches	Wt. Lbs. Per 1000	Cat. No.	Size Inches	Wt. Lbs. Per 1000
150	½	17	153	1¼	40
151	¾	20	154	1½	43
152	1	30	155	2	65

Snap-In Bushings

Cat. No.	Size Inches	Wt. Lbs. Per 1000	Cat. No.	Size Inches	Wt. Lbs. Per 1000
150-B	½	15	151-B	¾	20

REDUCING WASHERS

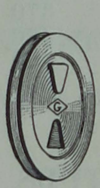


These inexpensive washers enable the user to reduce almost any size knockout to fit a smaller standard size conduit.

Made of galvanized iron in following sizes.

Cat. No.	Size Inches	Std. Pkg.	Price Per 100	Cat. No.	Size Inches	Std. Pkg.	Price Per 100
514	¾-½	1000	$2.10	522	1½-1	500	$8.80
515	1 -½	1000	3.80	523	1½-1¼	500	8.80
516	1 -¾	1000	3.80	524	2 - ½	500	11.30
517	1¼-½	500	7.50	525	2 - ¾	500	11.30
518	1¼-¾	500	7.50	526	2 -1	500	11.30
519	1¼- 1	500	7.50	527	2 -1¼	500	11.30
520	1½-½	500	8.80	528	2 -1½	500	11.30
521	1½-¾	500	8.80	------	-----------	-----	-------

DIAMOND G KNOCKOUT SEALS



Effectively and inexpensively close un-used knockouts in all types of conduit boxes. Two identical galvanized steel stampings, embossed to centralize in knockout are required to cover one hole.

Listed by Underwriters' Laboratories Under Re-examination Service.

Cat. No.	Size Knockout	Std. Pkg.	Carton Quan.	Wt. Lbs. Std. Pkg.	Price Per 100
10	½	1000	100	14	$1.81
20	¾	1000	100	20	2.26
30	1	500	50	14	2.89

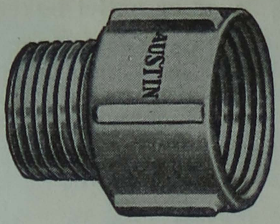
TYPE B WITH SCREW AND NUT

This type of knockout seal is adaptable to all classes of conduit boxes, buss raceways, safety switches, motor terminal and starting boxes. All discs are embossed to centralize in knockout, thoroughly rustproofed and marked for size and catalog number.

Cat. No.	Size Knockout	Std. Pkg.	Carton Quan.	Wt. Lbs. Std. Pkg.	Price Per 100
10-B	½	1000	50	17	$2.55
20-B	¾	1000	50	23	3.20
30-B	1	1000	50	32	4.15
40-B	1¼	500	50	24	5.90
50-B	1½	500	50	31	9.45
60-B	2	500	50	44	11.60
70-B	2½	100	10	23	22.25
80-B	3	100	10	31	27.30
90-B	3½	100	10	40	32.25
100-B	4	20	10	9	38.40

AUSTIN RIGID CONDUIT FITTINGS

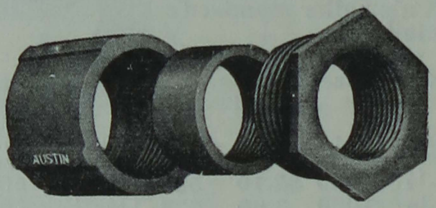
CONDUIT ENLARGER



Cat. No.	Size, In.	Carton	Std. Pkg.	Wt. Lbs. Per 100
401	¾ FM ½ M	25	100	12
402	1 FM ¾ M	25	50	16
403	1¼ FM 1 M	5	50	20

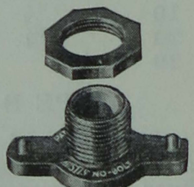
CONDUIT UNIONS

Does away with running threads. Permits you to open run of conduit at any point desired.



Cat. No.	Size, Inch	Std. Pkg.	Wt. Lbs. Per 100
6075	½	100	25
6076	¾	50	33
6077	1	25	56
6078	1¼	25	88
6079	1½	25	116
6080	2	20	200
6081	2½	10	370
6082	3	10	470
6083	3½	5	600
6084	4	5	680

AUSTIN NO-BOLT FIXTURE STUDS

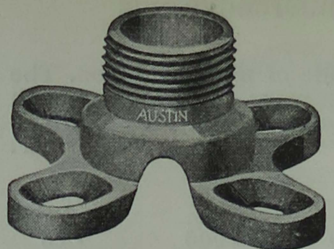


The No-Bolt Fixture Stud is easy to install, very substantial and takes up but very little room in the box. No bolts are required. It is put in place on the top of the box and the locknut is then run up. The support has all the strength of outlet box installation instead of two small bolts. The solid types are especially adapted for use in poured concrete work. Made of malleable iron, thoroughly cadmium plated. Complete with knockout.

Cat. No.	Size Inch	Carton	Std. Pkg.	Wt. Lbs. Per 1000
	Hickey Type			
358	⅜ M x ⅛ F	100	500	74
359	½	100	500	100
	Solid Type			
368	⅜	100	500	80
369	½	100	500	108

Prices include one locknut per stud.

AUSTIN MALLEABLE HICKEY FIXTURE STUDS



No. 800-H

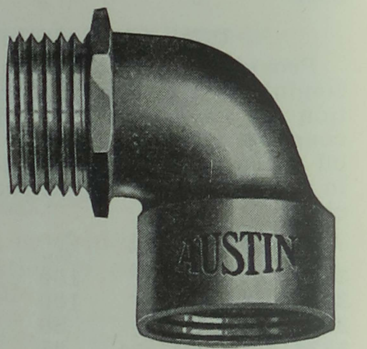
This stud is made of malleable iron, cadmium plated. All four prongs have extra long slots to allow adjustment. No hickeys are required on straight electric work. Packed in cartons without bolts.

Cat. No.	Size Inch	Carton	Std. Pkg.	Wt. Lbs. Per 1000
800	⅜Mx⅛F	100	1000	62
***800-H**	⅜	100	1000	62
801	½	50	100	110

*Hickey type.

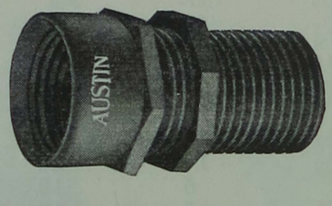
AUSTIN SHORT ELBOW CONNECTOR EXTENSION

With 90 degree short elbows plus regular straight box connectors, a 90 degree angle connector is made with ease. Remove locknut on connector and screw 90 degree extension onto shank. Also provides an economical short 90 degree elbow for rigid conduit.



Cat. No.	Size In.	Degree	Carton	Std. Pkg.	Wt. Lbs. Per 100
450	½	90	25	50	14
451	¾	90	10	50	25
452	1	90	5	25	36
453	1¼	90	5	25	84
454	1½	90	5	25	105
455	2	90	5	10	200

AUSTIN PANEL CONNECTOR EXTENSION



Can be adapted to any angle or straight type connector. Will provide a long threaded shank for panel or switchboard work or any place where a long shank box connector is desired. Made in one piece; galvanized. Has female thread on one end, male thread on the other end.

Cat. No.	Size In.	Thread, In. Female	Thread, In. Male	Std. Pkg.	Wt. Lbs. Per 100
440	½	½	½	50	14
441	¾	¾	¾	50	18
442	1	1	1	25	28
443	1¼	1¼	1¼	25	33
444	1½	1½	1½	25	38
445	2	2	2	10	75
446	2½	2½	2½	10	170

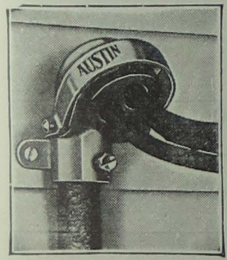
AUSTIN FITTINGS FOR USE WITH ANACONDA SERVICE CABLE

	ANACONDA CABLE			Knock-Out	CATALOG NOS. OF FITTINGS				
	Ins. Cond. Size AWG	Neutral Size AWG	Outside Diameter Inches	Inches	Water-tight Fittings	Non-Watertight Fittings	Weather-heads	Cable Straps	Cable Grips
Two Conductor Type C	12	12	.310	¾	R-210	6063-V	1573	238	CH-1
	10	10	.330	¾	R-210	6063-V	1573	238	CH-1
	8	8	.420	¾	R-210-S	6063-V	1573	238	CH-2
	6	6	.480	¾	R-210-S	6063-V	1573	239	CH-2
	4	4	.540	¾	R-28	6064-V	1573	239	CH-2
	2	2	.630	¾	R-26	6064-VS	1572	240	.....
Three Conductor Type CF	12	12	.340 x .500	¾	.....	6063-V	1573	274	CH-2
	10	10	.370 x .540	¾	.....	6008	1573	274	CH-2
	8	8	.450 x .690	¾	O-38	6008	1573	274	CH-2
	6	8	.500 x .790	1	OL-38	6009	1572	276	CH-2
	6	6	.510 x .800	1	OL-38	6009	1572	276	CH-2
	4	6	.570 x .890	1	O-36	6064-VS	1572	276	.....
	4	4	.580 x .910	1	O-36	6064-VS	1572	276	.....
	2	4	.650 x 1.020	1¼	O-32	6065-S	1570	276	.....
	2	2	.660 x 1.040	1¼	O-32	6065-S	1570	276	.....
2 Cond. Type SC & SC-100	12	12	.360	¾	R-210	6063-V	1573	238	CH-1
	10	10	.380	¾	R-210	6063-V	1573	238	CH-1
	8	8	.470	¾	R-210-S	6063-V	1573	239	CH-2
	6	6	.530	¾	R-28	6063-V	1573	239	CH-2
	4	4	.600	¾	RL-26	6064-V	1573	240	CH-2
	2	2	.680	¾	RL-24	6064-VS	1572	240	.....
Three Conductor Type SCF & SCF-100	12	12	.390 x .520	¾	O-310	6063-V	1573	274	CH-2
	10	10	.430 x .580	¾	O-310	6008	1573	274	CH-2
	8	8	.510 x .740	¾	O-38	6008	1573	275	CH-2
	6	8	.550 x .820	1	OL-38	6009	1572	276	CH-2
	6	6	.560 x .840	1	OL-38	6009	1572	276	CH-2
	4	6	.610 x .930	1	O-36	6064-VS	1572	276	.....
	4	4	.620 x .940	1	O-36	6064-VS	1572	276	.....
	2	4	.680 x 1.060	1¼	O-32	6065-S	1570	276	.....
	2	2	.700 x 1.080	1¼	O-32	6065-S	1570	276	.....

AUSTIN ENTRANCE HEADS

FOR SERVICE ENTRANCE CABLES

With 2-hole Mounting Bracket



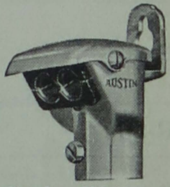
The long sleeve overhangs the cable and protects the joint of armor and braid from the weather. A two-hole mounting bracket is molded into the casting for easy attachment to the building. Easy and simple to wire. No. 1571 has a split insulator, making it possible to lay in the wires without fishing. Made of malleable iron, thoroughly cadmium plated.

No. 1570 fits cables: Type "SD"—(2-2 insulated, 1-4 bare) (2-2 insulated, 1-2 bare).

No. 1571 fits cables: Type "SD"—(1-8 ins. 1-8 bare) (2-8 ins. 1-10 bare) (2-8 ins. 1-8 bare) (1-6 ins. 1-6 bare) (2-6 ins. 1-8 bare) (2-6 ins. 1-6 bare) (1-4 ins. 1-4 bare) (2-4 ins. 1-6 bare) (2-4 ins. 1-4 bare) (1-2 ins. 1-2 bare).

Cat. No.	Dia. of Opening for Cable In. Min.	Max.	Carton	Std. Pkg.	Wt. Lbs. Per 100
1570	¾x15/16	1⅛	2	5	114
1571	7/16x27/32	13/16x1 1/16	5	50	70

With 1-hole Mounting Bracket



Cable is held into the head by an internal clamp, thoroughly cadmium plated to resist corrosion.

No. 1572 fits cables: Type "SE," Style "A" or "U," and Type "SD"—(2-6 ins. 1-8 bare) (2-6 ins. 1-6 bare) (2-4 ins. 1-6 bare) (2-4 ins. 1-4 bare) (1-2 ins. 1-2 bare).

No. 1573 fits cables: Type "SE," Style "A" or "U," and Type "SD"—(1-12 ins. 1-12 bare) (2-12 ins. 1-12 bare) (1-10 ins. 1-10 bare) (2-10 ins. 1-12 bare) (2-10 ins. 1-10 bare) (1-8 ins. 1-8 bare) (2-8 ins. 1-10 bare) (2-8 ins. 1-8 bare) (1-6 ins. 1-6 bare) (1-4 ins. 1-4 bare).

No. 1574 fits cables: Type "SE," Style "A" or "U," and Type "SD" in sizes from 2 conductor No. 14 to 2 conductor No. 6 also 3 conductor No. 14 to 3 conductor No. 10.

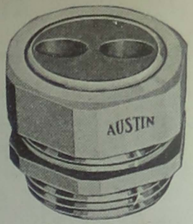
Cat. No.	Dia. of Opening for Cable In. Min.	Max.	Carton	Std. Pkg.	Wt. Lbs. Per 100
1572	13/32x11/16	27/32x1 1/32	5	50	39
1573	¼x13/16	21/32x 13/16	5	50	24
1574	7/32	⅝	5	50	16

No. O-36

AUSTIN HEX-NUT WATER-TIGHT CONNECTORS

FOR SERVICE ENTRANCE CABLE

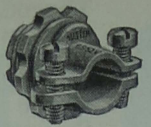
Made of Malleable Iron Only — Cadmium Plated


No. RT-228

Cat. No.	Size of Opening for Cable in Inches	Fits K.O. or Threaded Fitting in Inches	Fits Cable			Car-ton	Std. Pkg.	Approx. Wt. Lbs. per 100
			Underwriters' Type of Cable	Size Insul. Conds.	Size Bare Neutral			
R-210	⅜ Round	¾	SE Style A SE Style U & SD SE Style U & SD	1—No. 12 1—No. 12 1—No. 10	1—No. 12 1—No. 12 1—No. 10	10	100	18
RL-210	⅜ Round	1	SE Style A SE Style U & SD SE Style U & SD	1—No. 12 1—No. 12 1—No. 10	1—No. 12 1—No. 12 1—No. 10	10	100	23
R-210S	7/16 Round	¾	SE Style A SE Style U & SD	1—No. 10 1—No. 8	1—No. 10 1—No. 8	10	100	18
RL-210S	7/16 Round	1	SE Style A SE Style U & SD	1—No. 10 1—No. 8	1—No. 10 1—No. 8	10	100	23
O-310	15/32x⅝ Oval	¾	SE Style A SE Style A	2—No. 12 2—No. 10	1—No. 12 1—No. 10	10	100	18
OL-310	15/32x⅝ Oval	1	SE Style A SE Style A	2—No. 12 2—No. 10	1—No. 12 1—No. 10	10	100	23
O-310-S	½x23/32 Oval	¾	Special Size			10	100	18
OL-310-S	½x23/32 Oval	1	Special Size			10	100	23
R-28	17/32 Round	¾	SE Style A	1—No. 8	1—No. 8	10	100	18
RL-28	17/32 Round	1	SE Style A	1—No. 8	1—No. 8	10	100	23
O-38	9/16x13/16 Oval	¾	SE Style A SE Style A SE Style U & SD SE Style U & SD	2—No. 8 2—No. 8 2—No. 8 2—No. 8	1—No. 10 1—No. 8 1—No. 10 1—No. 8	10	100	18
OL-38	9/16x13/16 Oval	1	SE Style A SE Style A SE Style U & SD SE Style U & SD SE Style U & SD SE Style U & SD	2—No. 8 2—No. 8 2—No. 8 2—No. 8 2—No. 6 2—No. 6	1—No. 10 1—No. 8 1—No. 10 1—No. 8 1—No. 8 1—No. 6	10	100	25
R-38	23/32 Round	1	Special Size Special Size	2—No. 8 2—No. 8	1—No. 10 1—No. 8	10	100	23
R-26	19/32 Round	¾	SE Style A SE Style U & SD SE Style U & SD	1—No. 6 1—No. 6 1—No. 4	1—No. 6 1—No. 6 1—No. 4	10	100	18
RL-26	19/32 Round	1	SE Style A SE Style U & SD SE Style U & SD	1—No. 6 1—No. 6 1—No. 4	1—No. 6 1—No. 6 1—No. 4	10	100	25
O-36	⅝x29/32 Oval	1	SE Style A SE Style A SE Style U & SD SE Style U & SD	2—No. 6 2—No. 6 2—No. 4 2—No. 4	1—No. 8 1—No. 6 1—No. 6 1—No. 4	10	100	25
R-36	57/64 Round	1	Special Size Special Size	2—No. 6 2—No. 6	1—No. 8 1—No. 6	10	100	23
R-24	45/64 Round	¾	SE Style A SE Style A SE Style U & SD	1—No. 4 1—No. 2 1—No. 2	1—No. 4 1—No. 2 1—No. 2	10	100	18
RL-24	45/64 Round	1	SE Style A SE Style A SE Style U & SD	1—No. 4 1—No. 2 1—No. 2	1—No. 4 1—No. 2 1—No. 2	10	100	25
O-34	23/32x15/16 Oval	1	SE Style A SE Style A	2—No. 4 2—No. 4	1—No. 6 1—No. 4	10	100	25
R-34	29/32 Round	1	Special Size Special Size	2—No. 4 2—No. 4	1—No. 6 1—No. 4	10	100	23
O-32	23/32x1 3/32 Oval	1¼	SE Style A SE Style A	2—No. 2 2—No. 2	1—No. 4 1—No. 2	5	50	64
R-32	1 1/16 Round	1¼	ASE	3—No. 6	....	5	50	64
RT-228	Two 7/16 Round	1	SE Style A SE Style U & SD	1—No. 10 1—No. 8	1—No. 10 1—No. 8	10	100	25
RT-28	Two 15/32 Round	1¼	SE Style A	1—No. 8	1—No. 8	5	50	64

AUSTIN "UNIVERSAL" CONNECTORS

TWO-SCREW TYPE



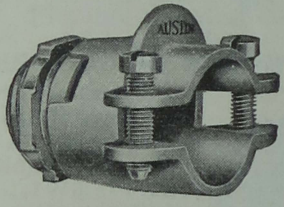
No. 6062V

The double grip clamp connector will take armored cable: 14-1, 12-1, 10-1, 8-1, 6-1, 14-2, 12-2, 10-2, 14-3, 12-3. Armored lead cable: 14-2, 12-2, 14-3. Armored lamp cord: 18-2, 16-2, 14-2. Flexible steel conduit: 5/16 in., ⅜ in. Non-metallic sheathed cable: 14-2, 12-2, 10-2, 14-3, 12-3. Rubber jacketed portable type "S": 18-2, 16-2, 14-2, 12-2, 10-2, 18-3, 16-3, 14-3, 12-3, 18-4, 16-4, 14-4. Armored service entrance cable type "SE" style "A": 1-12 Ins. 1-12 Bare; 2-12 Ins. 1-12 Bare; 1-10 Ins. 1-10 Bare; 2-10 Ins. 1-10 Bare; 1-8 Ins. 1-8 Bare; 1-6 Ins. 1-8 Bare; 1-6 Ins. 1-6 Bare. Unarmored service entrance cable, type "SE" style U or service drop cable type "SD": 1-12 Ins. 1-12 Bare; 2-12 Ins. 1-12 Bare; 1-10 Ins. 1-10 Bare; 2-10 Ins. 1-10 Bare; 1-8 Ins. 1-8 Bare; 1-6 Ins. 1-6 Bare. Takes ½-inch knockout.

Cat. No.	Size In.	Opening for Cable, In.	Wire Hole, In.	Std. Pkg.	Wt. Lbs. Per 1000
6062V	⅜	5/16 to ⅝	7/16	1000	80

6063V fits same cables as 6062V.

Cat. No.	Size In.	Opening for Cable, In.	Wire Hole, In.	Std. Pkg.	Wt. Lbs. Per 1000
6063V	⅜	¼ to ⅝	7/16	1000	76



No. 6064

No. 6064V fits armored cable: 10-2, 8-2, 12-3, 10-3, 14-4, 12-4, 10-4. Armored lead cable: 12-2, 10-2, 14-3, 12-3, 10-3. Flexible steel conduit: ½ in. Non-metallic sheathed cable: 8-2, 10-3. Rubber jacketed portable cord type "S": 10-3, 12-4, 10-4. Armored service entrance cable type "SE" style "A": 2-8 Ins. 1-10 Bare; 2-8 Ins. 1-8 Bare; 1-4 Ins. 1-4 Bare. Unarmored service entrance cable, type "SE" style U or service drop cable type "SD": 1-4 Ins. 1-4 Bare. Takes ½-inch knockout.

Cat. No.	Size In.	Opening for Cable, In.	Wire Hole, In.	Std. Pkg.	Wt. Lbs. Per 100
6064V	½	½ to 15/16	7/16	100	16

No. 6064VS fits armored cable: 8-2, 6-2, 8-3. Armored lead cable: 8-2, 6-2. Flexible steel conduit: ½ in. Non-metallic sheathed cable: 8-2, 6-2, 4-2, 8-3. Armored service entrance cable type "SE" style "A": 2-8 Ins. 1-10 Bare; 2-8 Ins. 1-8 Bare; 2-6 Ins. 1-8 Bare; 2-6 Ins. 1-6 Bare; 2-4 Ins. 1-6 Bare; 2-4 Ins. 1-4 Bare; 1-2 Ins. 1-2 Bare. Unarmored service Entrance cable type "SE" style U or service drop cable type "SD": 2-6 Ins. 1-8 Bare; 2-6 Ins. 1-6 Bare; 2-4 Ins. 1-6 Bare; 2-4 Ins. 1-4 Bare; 1-2 Ins. 1-2 Bare. Takes ¾-inch knockout.

Cat. No.	Size In.	Opening for Cable, In.	Wire Hole, In.	Std. Pkg.	Wt. Lbs. Per 100
6064VS	½S	½ to 15/16	¾	100	20

AUSTIN "UNIVERSAL" CONNECTORS

TWO-SCREW TYPE

No. 6065V fits armored cable: 6-2, 4-2, 6-3. Armored lead cable: 8-3, 6-3. Flexible steel conduit: ¾ in. Non-metallic sheathed cable: 6-3, 4-3. Takes ¾-inch knockout.

6065S—Same cables as 6065V, also armored service entrance cable type "SE" style "A": 2-2 Ins. 1-4 Bare; 2-2 Ins. 1-2 Bare. Unarmored service entrance cable type "SE" style U or service drop cable type "SD": 2-2 Ins. 1-4 Bare; 2-2 Ins. 1-2 Bare, but fits into 1-inch knockout.

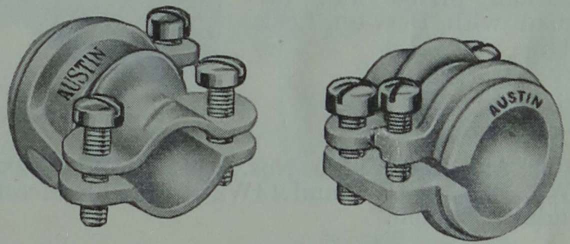
6066—Flexible Steel Conduit: 1 inch. Fits 1-inch knockout.

6067—Flexible Steel Conduit: 1¼ inches. Fits 1¼-inch knockout.

Cat. No.	Size In.	Opening for Cable, In.	Wire Hole, In.	Std. Pkg.	Wt. Lbs. Per 1000
6065V	¾	1⅛ to 1 1/16	¾	100	220
6065S	¾S	1⅛ to 1 3/16	1	25	260
6066	1	1 1/16 to 1 5/16	1	25	380
6067	1¼	1 5/16 to 1⅝	1 5/16	10	480

AUSTIN BOX CONNECTORS

TWO-SCREW TYPE NO-NUT BOX CONNECTOR



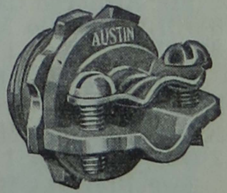
No. 1004 No-Nut Connector with Open Throat

A few turns with a screw driver wedges connector into knockout. No pliers or wrenches required. With No-Nut all connections are made on the outside of box, free from obstructions.

Fits ½-inch knockout. Opening for cable: maximum, 11/16-inch; minimum, 5/16-inch. Wire throat, 11/16-inch.

Cat. No.	Description	Wt. Lbs. Per 100
1004	Will take Non-Metallic Sheathed Cable without removing braid, 14-2, 12-2, 10-2, 14-3, 12-3, 10-3. Rubber Jacketed portable Cord Type S, 18-2, 16-2, 14-2, 12-2, 10-2, 18-3, 16-3, 14-3, 12-3, 18-4, 16-4, 14-4	-----

FOR CORD AND BARE ARMORED GROUND WIRE

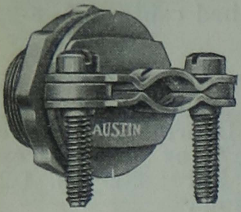


Designed to take rubber jacketed portable cords "CNX" covered neutral cable, or any type of cable having outside diameter of 3/16 to ½ inch.

Cat. No.	Size In.	Size K.O., In.	Carton	Std. Pkg.
2040	3/16 to ½	½	50	1000

AUSTIN BOX CONNECTORS

FOR NON-METALLIC SHEATHED AND "CNX" CABLE

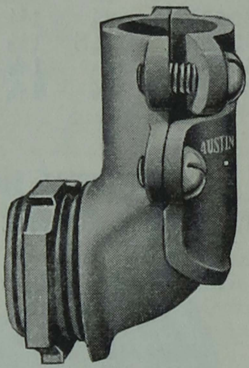


Adjustable from 3/16 to ⅝ of an inch. For non-metallic sheathed cable, "CNX" cable, rubber cord, bare armored ground wire and loom with outside diameter 3/16 to ⅝ of an inch.

Cat. No.	Fits K.O., In.	Carton	Std. Pkg.
2004	½	50	1000

SQUEEZE TYPE ANGLE BOX CONNECTORS

This Two-Piece Angle Box connector is especially designed for use with large size cable. The removable cap eliminates fishing and makes possible an easy and quick installation. Made of malleable iron, thoroughly cadmium plated and furnished with Driv-on Locknuts.



Two-Piece Type

For Armored Cable Nos. 6W1, 14W2, 12W2, 14W3, 12W3, 14W4, and 14W2L; Flexible Metallic Conduit, ⅜-inch.

Cat. No.	Size In.	Diam. of Op'g for Cable, In.	Size K.O.	Degree	Std. Pkg.	Wt. Lbs. Per 100
2085V	⅜	21/32	½	45	100	10

For Armored Cable Nos. 6W1, 14W2, 12W2, 14W3, 12W3, 14W4, and 14W2L; Flexible Metallic Conduit, ⅜-inch.

2086V	⅜	21/32	½	90	100	17

For Armored Cable Nos. 10W2, 8W2, 10W3, 8W3, 12W2L, 10W2L, 8W2L, 14W3L, 12W3L and 10W3L.

2086A	⅜A	13/16	½	90	100	25

For Armored Cable No. 6W2; Flexible Metallic Conduit, ½-inch.

2087V	½	15/16	½	45	100	22

For Armored Cable No. 6W2; Flexible Metallic Conduit, ½-inch.

2088V	½	15/16	½	90	100	24

For Armored Cable Nos. 4W2, 6W3, 4W3, 6W2L, 8W3L; Flexible Metallic Conduit, ¾-inch.

2089	¾	1⅛	¾	45	50	30

For Armored Cable Nos. 4W2, 6W3, 4W3, 6W2L, 8W3L; Flexible Metallic Conduit, ¾-inch.

2090V	¾	1⅛	¾	90	50	36

For Flexible Metallic Conduit, 1-inch.

2092	1	1 13/32	1	90	25	60

For Flexible Metallic Conduit, 1¼-inch.

2074	1¼	1 21/32	1¼	90	10	100

For Flexible Metallic Conduit, 1½-inch.

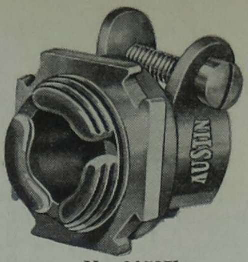
2076	1½	1⅞	1½	90	10	170

For Flexible Metallic Conduit, 2-inch.

2078	2	2½	2	90	5	240

AUSTIN BOX CONNECTORS

⅜-INCH SQUEEZE TYPE



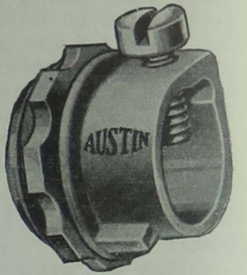
No. 2053V

A very popular style. Thoroughly cadmium plated, and furnished with Driv-on locknuts. Mouth is large enough so that wires may be fished through freely. Adapted for: Armored cable sizes 6W1, 14W2, 12W2, 14W3, ible metallic conduit ⅜ in. 12W3, and 14W2L; flexible metallic conduit ⅜ inches.

Cat. No.	Diam. Op'g for Cable Inches	Diam. Bushed Hole, In.	Size K.O. Inches	Wt. Lbs. per 1000
2053V	⅝	7/16	½	74

⅜-INCH WEDGE TYPE

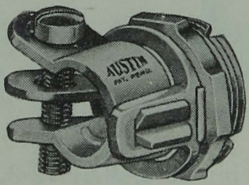
The wedge type is a very simple and practical connector and one which is easily installed. The set screw wedges the armor of the cable against the wall of the connector. Adapted for: Armored cable sizes 6W1, 14W2, 12W2, 14W3, 12W3 and 14W2L; Flexible metallic conduit ⅜ inches.



No. 4053V

Cat. No.	Diam. Op'g for Cable Inches	Diam. Bushed Hole, In.	Size K.O. Inches	Wt. Lbs. per 1000
4053V	⅝	7/16	½	66

⅜-INCH HINGE TYPE



No. 7053V

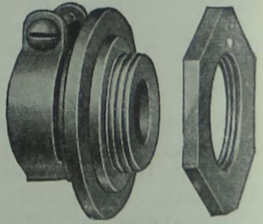
Clamps work like a hinge and draw up tight around the cable. Adapted for: Armored cable sizes 10W1, 8W1 6W1, 4W1, 14W2, 12W2, 10W2, 14W3, 12W3 and 14W2L; Flat armored cable size 14W2; Armored lamp cord sizes 18W2 and 16W2; Flexible metallic conduit sizes 5/16 and ⅜ in.

Cat. No.	Diam. Op'g for Cable Inches	Diam. Bushed Hole, In.	Size K.O. Inches	Wt. Lbs. per 1000
7053V	⅝	7/16	½	76

MIDGET SQUEEZE TYPE BOX CONNECTORS

For Armored Lamp Cord

These connectors are made to take Nos. 18 and 16 armored lamp cord and are threaded to fit standard ⅜-inch sockets. May also be furnished equipped with ring collar and locknut so that they will also fit into a ½-inch conduit knockout. Standard package, 100.



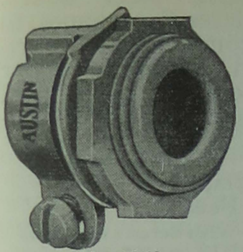
No. 2052½
With Ring Collar and Locknut

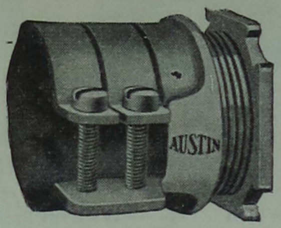
Cat. No.	Size Inches	Dia. Op'g for Cable Inches	Diam. Bushed Hole, In.	Size K.O. Inches	Wt. Lbs. Per 100
***2050**	¼	15/32	5/16	⅜	3
2050½	¼	15/32	5/16	½	7
***2052**	5/16	17/32	⅜	⅜	3½
2052½	5/16	17/32	⅜	½	7½

*No locknut furnished. These connectors are threaded to fit standard ⅜-inch sockets.

AUSTIN BOX CONNECTORS

LARGE SIZE SQUEEZE TYPE


No. 2054


No. 2060

Made to take all sizes of armored cable and metallic conduit. Heavy malleable iron cadmium plated. Sizes 1½ inches to 3 inches are furnished with two screws to provide double grip and prevent slipping out on short bends. Furnished with Driv-on locknuts. Cartons of first five listed contain 20 units, the others, 5 units.

For armored cable Nos. 8W2, 8W3, 12W2L, 10W2L, 8W2L, 14W3L, 12W3L and 10W3L.

Cat. No.	Size In.	Diam. Opn'g for Cable, In.	Size K.O.	Std. Pkg.	Wt.Lbs. Per 100
2053AV	⅜A	13/16	½	100	11

For armored cable No. 8W3L; flexible metallic conduit ½ inch. No. 2054V with peek hole.

2054	½	15/16	½	100	14
2054V	½	15/16	½	100	14

For armored cable Nos. 6W2; ½ inch flexible metallic conduit.

2054S	½	15/16	¾	100	18

For armored cable Nos. 4W2, 6W3, 6W2L, 8W3L, 6W3L. Flexible metallic conduit ¾ inch.

2055	¾	1 1/16	¾	100	21

For armored cable No. 4W3 flexible metallic conduit ¾ inch.

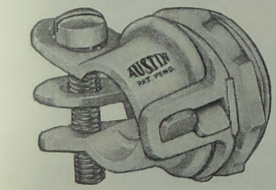
2055S	¾	1 1/16	1	100	30

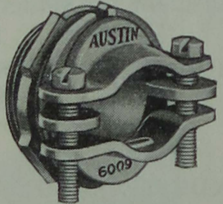
For Flexible Metallic Conduit

2056	1	1⅜	1	25	36
2057	1¼	1 21/32	1¼	10	46
2058	1½	1⅞	1½	10	64
2059	2	2½	2	10	105
2060	2½	2⅞	2½	5	160
2061	3	3 9/16	3	5	200

THREADED TYPE

For Non-Metallic Sheathed Cable


No. 2005


Nos. 6008, 6009

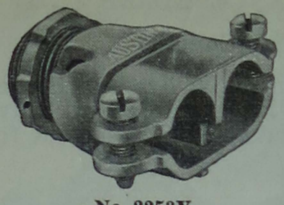
No. 2005 has a Tru-fit clamp which forms around the cable. For use with sizes 14W2, 12W2, 14W3, 12W3.

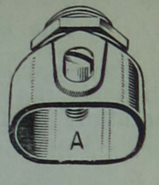
No. 6008 takes Non-Metallic sheathed cables Nos. 14W2, 12W2, 10W2, 8W2, 14W3, 12W3, 10W3; Service Entrance Cable from 3-cond. 12 to 3-cond. 8. Fits ¾-inch conduit knockout.

No. 6009 takes Non-Metallic Sheathed Cable Nos. 8W2, 6W2, 14W3, 12W3, 10W3, 8W3, 6W3; Service Entrance Cable from 3-cond. 12 to 3-cond. 4.

Cat. No.	Fits K.O. for Pipe, In.	Car-ton	Std. Pkg.
2005	½	50	1000
6008	¾	25	50
6009	1	10	20

AUSTIN DUPLEX BOX CONNECTORS


No. 2253V
Universal Type



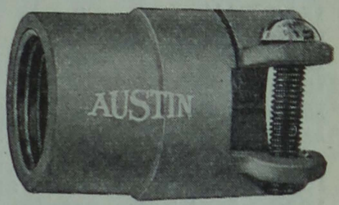
No. 2254 Wedge Type

There is a big saving in time, labor and elimination of waste of material by using these Duplex Box Connectors.

Cat. No.	Size In.	Type	Dia. of Opening for Cable	Dia. of Bushed Hole	Std. Pkg.	Car-ton
2253V	⅜	Universal	Two ⅝"	⅝	100	20
2254	⅜	Wedge	1 3/16x⅝	9/16	100	20

AUSTIN RIGID CONDUIT FITTINGS

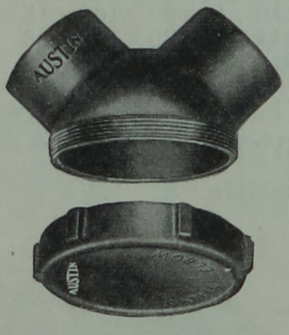
COMBINATION COUPLINGS SQUEEZE TYPE



Permits connecting of flexible metallic conduit to rigid iron conduit. Galvanized.

Cat. No.	Size In.	Diam. Opening for Cable, In.	Std. Pkg.	Wt. Lbs. Per 100
2030	½	1	50	24
2031	¾	1⅛	50	24
2032	1	1⅜	20	35
2033	1¼	1¾	20	45
2034	1½	2⅛	10	70
2035	2	2⅝	10	110

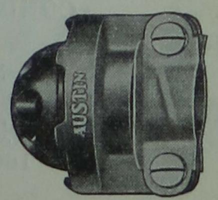
TYPE "Y" CAPPED ELBOWS



Neat, strong, right-angle, weatherproof fitting for outside installations. Large bowl provides ample room for drawing in wires. Primarily designed as service entrance fitting. May be used any place where short right-angle fitting is desired.

Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
1480	½	5	50	50
1481	¾	5	50	64
1482	1	5	25	132
1483	1¼	2	10	250
1484	1½	1	5	320

CABLE END SERVET



For use with armored cable or non-metallic sheathed cable. No loose parts or projections.

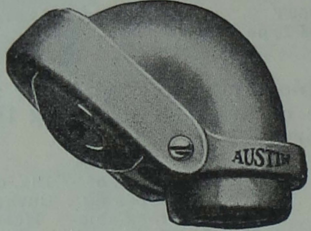
Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
1650	⅜	20	100	14

AUSTIN RIGID CONDUIT FITTINGS

SERVICE ENTRANCE HEADS

For Heavy Wall Conduit

The universal service entrance heads are used in both horizontal and vertical positions for heavy wall conduit. Cadmium plated inside and out for best protection.



Cat. No.	Size In.	Holes in Insert	Size of Holes, In.		No. Holes Plugged	Std. Pkg.	Wt. Lbs. 100
1525	½	4	4– 5/16	....	2	50	45
1526	¾	4	3– 15/32	1– ⅜	2	50	64
1527	1	4	3– ½	1– 13/32	2	20	100
1528	1¼	4	3– 11/16	1– 17/32	1	10	160
1529	1½	4	3– 13/16	1– ⅝	1	5	260
1530	2	4	3–1	1– 13/16	1	5	390
*1531	2½	4	4–1 5/16	....	1	1	800
*1532	3	6	3–1¾	3–1 3/16	3	1	1600
*1533	3½	6	3–1¾	3–1 3/16	3	1	1900
*1534	4	6	3–1¾	3–1 3/16	3	1	2000
1535	4½	Specify size and number of holes required in insulator				1	2650
1536	5					1	2750

*Furnished with grounding lug. The smaller hole in all cases is the one plugged.

STRAIGHT CONDUIT SERVET

3-hole Insulator

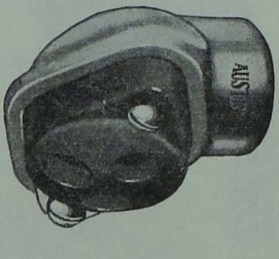
Small compact fitting designed for motor installations and all combination work.

Cat. No.	Size In.	Carton	Std. Pkg.	Wt.Lbs. Per 100
1610	½	20	100	15
1611	¾	20	100	16
1612	1	10	50	36

ANGLE CONDUIT SERVET

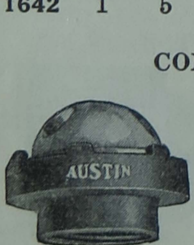
3-hole Insulator

Strong, right-angle service entrance fitting on horizontal conduit. Also practical for inside installations where a small right-angle service fitting is desired.



Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 100
1640	½	10	50	47
1641	¾	10	50	57
1642	1	5	30	96

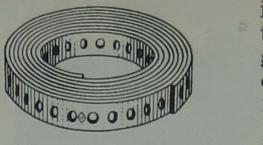
CONDUIT END SERVET



Small in size. Convenient for all combination work. No loose parts.

Cat. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Per 100
1660	½	20	100	10

DIAMOND G COPPER GROUND STRIP



Indispensable when bonding conduits, steel boxes, tanks or irregular shapes to ground conductors. Fabricated from high grade copper ribbon, accurately perforated, ¼-inch holes on ½-inch centers.

Plain Ground Strip
***Price per 100 Feet**

Width Inches	B&S Ga.	Without Screws			With Screws and Nuts		
		Wt.Lbs. Per C	100-499 Feet	10-90 Feet	Wt.Lbs. Per C	100-499 Feet	10-90 Feet
¾	16	16	**$9.00**	**$9.90**	18	**$9.95**	**$10.85**
¾	14	18	**11.45**	**12.55**	19	**12.85**	**13.95**
¾	12	22	**14.40**	**15.80**	22	**16.25**	**17.65**
1	14	25	**15.25**	....	20	**17.10**	....

*500 to 5000 feet, prices on request.

10-ft. coils. Copper ground strip wider than ¾-inch will be furnished in 50-foot coils.

AUSTIN GROUND FITTINGS

SOLDERLESS ADJUSTABLE GROUND CLAMPS

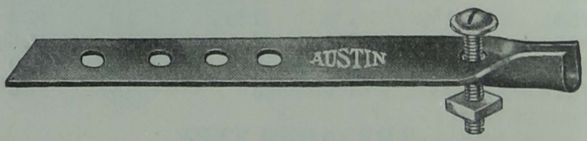
Double contact. No solder, no flux, no iron, no torch, to install.

Simply loop the ground wire, place it under the clip and tighten screw. Provides a perfect bond with double contact.

51 S
AUSTIN
⅜-1 INCH

Cat. No.	Size Inches	Carton	Wt. Lbs. Per 100
51-S	⅜ to 1	100	100
52-S	⅜ to 2	100	130
53-S	⅜ to 3	50	188

"SOLDER" ADJUSTABLE GROUND CLAMPS

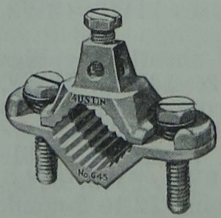


Made of heavy copper, having an easy, simple arrangement for soldering the ground wire.

Cat. No.	Size Inches	Carton	Std. Pkg.	Wt. Lbs. Per 100
51	⅜ to 1	100	1000	95
52	⅜ to 2	100	1000	130
53	⅜ to 3	50	1000	200

BONDRITE SOLDERLESS GROUND CLAMPS

For Bare or Insulated copper Wire



Solderless, with V shaped reversible clamp, fits Nos. 8, 6 or 4 B&S bare or insulated copper wire and takes ½ to 1-inch water pipe, or ground rod. The holes through the deck run at right angles to each other permitting ground wire to be inserted from any side.

The screw when tightened wedges the wire into the cup in center of fitting, making a good bond and positive grip.

Cat. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Per 100
G-45	With Reversible Clamp	5	25	44

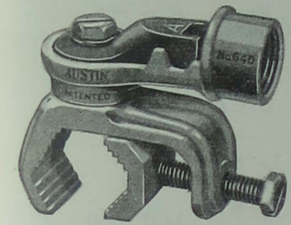
AUSTIN GROUND FITTINGS

BONDRITE GROUND CLAMPS FOR RIGID CONDUIT

Austin Bondrite ground clamps are made of malleable iron, cadmium plated. Lock washer keeps screw tight.

When grounding conductor is enclosed in conduit (or metal tubing with use of Austin EMT adapter or connector) and attached to water pipe or grounding electrode, any clamp listed below is recommended. Fittings with V-shaped clamps reversible for use with ground rod.

NO. G-40 WITH "VISE-GRIP" CLAMP

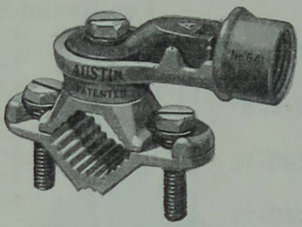


Adjustable, with "Vise-Grip" clamp, fits ½-inch ground conduit and takes ½ to 1-inch water pipe, or ⅝ to 1-inch ground rod with approved solder or solderless heavy brass lugs.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
G-40*	5	25	76

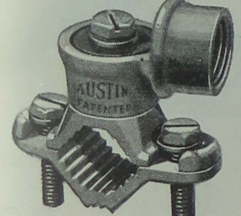
NO. G-41 WITH "V" SHAPED REVERSIBLE CLAMP

Adjustable, with V shaped reversible clamp, fits ½-inch ground conduit. No. G-41 takes ½ to 1-inch water pipe or ground rod. No. G-412 takes 1¼ to 2-in. water pipe. No. G-413 takes 2½ to 3-in. water pipe and No. G-414 takes 3½ to 4-in. water pipe. With solder or solderless lugs.



Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100	Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
G-41*	5	25	82	G-413*	5	10	150
G-412	5	25	80	G-414*	2	5	175

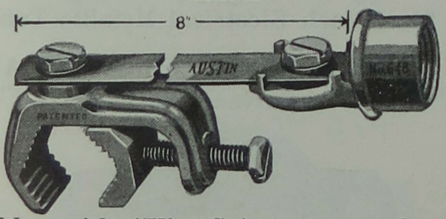
NO. G-44 WITH "V" SHAPED REVERSIBLE CLAMP



Adjustable, with V shaped reversible clamp, fits ½-inch ground conduit and takes ½ to 1-inch water pipe or ½ to 1-inch ground rod. Solderless type.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
G-44*	5	25	68

NO. G-48 FLEXIBLE—WITH "VISE-GRIP" CLAMP



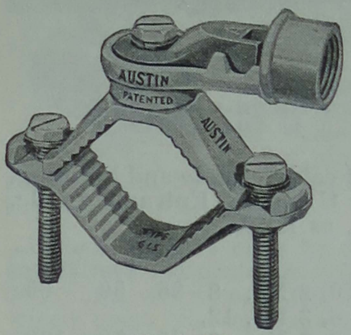
Flexible, with "Vise-Grip" clamp; fits ½-inch ground conduit and takes ½-inch to 1-inch water pipe or ⅝-inch to 1-inch ground rod—solderless. The 8-inch copper strap makes it a convenient fitting when ground electrode is not easily accessible as it can be bent, twisted or turned into any shape.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
G-48*	With Vise-Grip Clamp	5	25	80
G-48-V*	With "V" Shaped Clamps	5	25	86

*May be used with ¾-inch ground conduit by using Austin No. 401 adapter, or metallic tubing (thin wall) with use of Austin adapter or connector.

AUSTIN GROUND FITTINGS

BONDRITE GROUND CLAMPS FOR RIGID CONDUIT

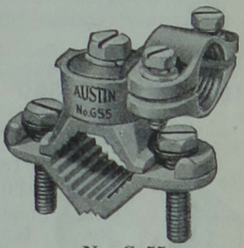


No. G-412

The deck on these clamps for large size water pipes is the same as No. G-41 and has a heavy brass lug to which the ground wire may be soldered, or by placing the ground wire under the lug it makes a positive solderless bond.

Cat. No.	Fits		Car-ton	Std. Pkg.	Wt. Lbs. Per 100
	Ground Cond. (In.)	Water Pipe (In.)			
*G-412	½	1¼, 1½, 2	5	25	80
*G-413	½	2½, 3	5	10	150
*G-414	½	3½, 4	2	5	175

Adjustable with "V" shaped reversible clamp. Fits ½-inch thin wall or ½-inch heavy wall conduit and takes ½ to 1-inch water pipe or ½ to 1-inch ground rod. Solder or solderless.



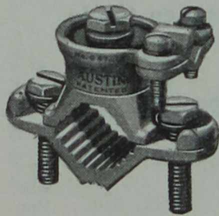
No. G-55

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
G-55	5	25	72

*May also be used with ¾-inch ground conduit by using Austin No. 401 Adapter. Also electrical metallic tubing (thin wall conduit) with the use of Austin EMT Adapter or Connector.

BONDRITE GROUND CLAMP

For Armored Ground Wire

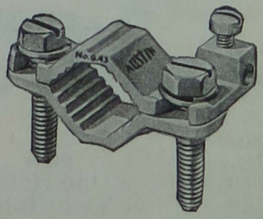


Adjustable, with V shaped reversible clamp, fits Nos. 8, 6 or 4 B&S armored ground wire and takes ½ to 1-inch water pipe or ½ to 1-inch ground rod—solderless. May also be used with Nos. 8, 6 or 4 bare or insulated copper wire.

Cat. No.	Fits Water Pipe (In.)	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
G-47	½, 1	5	25	60
G-472	1¼, 1½, 2	5	25	70
G-473	2½, 3	5	10	130
G-474	3½, 4	2	5	170

BONDRITE SOLDERLESS GROUND CLAMPS

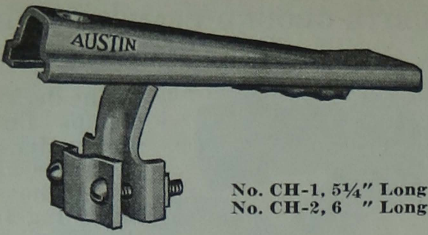
For Bare or Insulated Copper Wire



Solderless with "V" shaped reversible clamp, fits Nos. 8, 6 or 4 B&S bare or insulated copper wire and takes ½ to 1-inch water pipe or ½ to 1-inch ground rod.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
G-43	5	25	28

AUSTIN SERVICE CABLE HANGERS



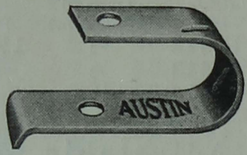
No. CH-1, 5¼" Long
No. CH-2, 6 " Long

Used to properly hold cable at pole and building. Fit Type SE, Style A or U Service Entrance Cable, SD Service Drop Cable, as listed.

Cat. No.	Fits Cable	Car-ton	Std. Pkg.	Wt.Lbs. Per 100
CH-1	2 No. 12, 2 No. 10, 2 No. 8	25	50	65
CH-2	2 No. 8, 2 No. 6, 3 No. 12, 3 No. 10, 3 No. 8, 3 No. 6	25	50	100

AUSTIN CABLE CLIPS

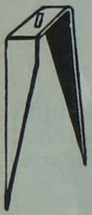
For use with armored cable, non-metallic sheathed cable, and "CNX" cable sizes 14W2, 12W2, 10W2, 14W3 and 12W3.



No. 161

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Per 1000
161	500	1000	10

AUSTIN DRIV-IN CABLE STAPLES

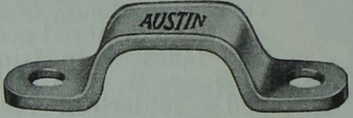


Will take Nos. 14W2, 14W3, 12W2, 12W3, 10W2 and 10W3 armored cable.

Cat. No.	Length Inches	Car-ton	Std. Pkg.	Wt. Lbs. Per 1000
360	1⅜	500	10,000	11½
361	1⅜	500	10,000	11½
362	1⅛	500	10,000	13

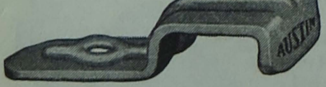
No. 360 has an indenture which rests in the seam of armored cable and holds it securely in place. No. 361 and 362 are plain for Non-Metallic Sheathed Cables.

AUSTIN STRAPS
TWO-HOLE MALLEABLE IRON STRAPS
For Oval-Shaped Service Entrance Cable



Cat. No.	Type SE, Style A		Type SE, Style U and Type SD		Car-ton	Std. Pkg.	Wt Lbs. Per 100
	Ins. Cond.	Bare Neutral	Ins. Cond.	Bare Neutral			
2275	2- 8 2- 8	1-10 1- 8	------ ------	------ ------	100	100	3½
2276	2- 6 2- 6 2- 4 2- 4 2- 2 2- 2	1- 8 1- 6 1- 6 1- 4 1- 4 1- 2	2- 6 1- 6 2- 4 2- 4 2- 2 2- 2	1- 8 1- 6 1- 6 1- 4 1- 4 1- 2	100	100	4
2277	2- 2	1- 2	2- 2	1- 2	100	100	5

NON-METALLIC SHEATHED CABLE STRAPS

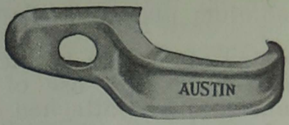


No. 170

No. 260

Cat. No.	Style	For
170	One-Hole	14W2, 12W2, 10W2
260	Two-Hole	14W2, 12W2, 10W2

AUSTIN STRAPS
MALLEABLE IRON ONE-HOLE STRAPS
For Service Entrance Cable



No. 275

For Oval-Shaped Cables

Cat. No.	Type SE, Style A		Type SE, Style U and Type SD		Car-ton	Std. Pkg.	Wt. Lbs. Per 100
	Ins. Cond.	Bare Neutral	Ins. Cond.	Bare Neutral			
274	2-12 2-10	1-12 1-10	2- 8 2- 8	1-10 1- 8	100	100	3
275	2- 8 2- 8	1-10 1- 8	------ ------	------ ------	100	100	3½
276	2- 6 2- 6 2- 4 2- 4 2- 2 2- 2	1- 8 1- 6 1- 6 1- 4 1- 4 1- 2	2- 6 2- 6 2- 4 2- 4 2- 2 2- 2	1- 8 1- 6 1- 6 1- 4 1- 4 1- 2	100	100	4
277	2- 2	1- 2	2- 2	1- 2	100	100	..

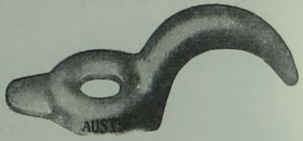
For Round-Shaped Cables

Cat. No.	Type SE, Style A Ins. Cond.	Type SE, Style A Bare Neutral	Type SE, Style U and Type SD Ins. Cond.	Type SE, Style U and Type SD Bare Neutral	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
238-⅛	1-12 1-10	1-12 1-10	1-10 1- 8	1-10 1- 8	100	100	2½
T-238*	1-12 1-10	1-12 1-10	1-10 1- 8	1-10 1- 8	100	100	2½
239-¼	1- 8 1- 6	1- 8 1- 6	1- 6 1- 4	1- 6 1- 4	100	100	3
240-⅜	1- 4 1- 2	1- 4 1- 2	1- 2 ------	1- 2 ------	100	100	4

*For two cables laid parallel.

ONE-HOLE LIGHT-WEIGHT MALLEABLE STRAPS
For Heavy Wall Conduit

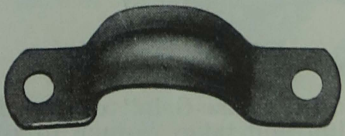
The sharp edges on that part of the clamp which fits over the conduit serves to hold the conduit very rigid. Cadmium plated.



Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt. Lbs. Per 100
***140**	⅜	50	100	3
141	½	50	100	4
142	¾	50	100	7
143	1	50	100	10
144	1¼	25	50	16

*Also fits ½-inch Electrical Metallic Tubing.

TWO-HOLE STEEL PIPE STRAPS
Galvanized

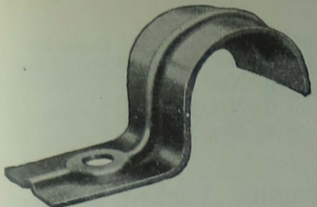


Size In.	Approx. No. to Lb.	Price Per Lb.	Size In.	Approx. No. to Lb.	Price Per Lb.
⅛	90	**$0.25**	1½	11	**$0.25**
¼-BX	90	**.25**	2	7	**.25**
⅜	50	**.25**	2½	5	**.25**
½	45	**.25**	3	4	**.25**
¾	30	**.25**	3½	2	**.25**
1	17	**.25**	4	2	**.25**
1¼	13	**.25**	5	2	**.25**

Standard packages: 100 lb. bags; 25 lb. cartons; 5 and 10 lb. packages.

AUSTIN STRAPS

JIFFY ONE-HOLE "STEEL" CONDUIT STRAPS



Made of heavy steel thoroughly cadmium plated or Everdur. Ribbed to give added stiffness and strength. Steel furnished on all orders unless Everdur specified.

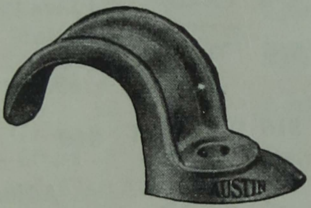
Cat. No.	Size In.	Size Strap Inside	Std. Pkg.	Wt. Lbs. Per 100 Steel	Wt. Lbs. Per 100 Everdur
215-J	....	.250	500	1¼	1¼
216-J	....	.375	500	1¼	1¼
217	⅛	.405	500	1½	1¾
218	¼ (BX)	.540	500	2	2¼
219	*⅜	.675	100	3	3½
220	½	.840	100	4	4¾
220A	†⅝	.922	100	4¼	5
221	¾	1.050	100	4½	5¼
222	1	1.315	100	8½	9¾
223	1¼	1.660	100	12½	14½

*Fits ½-inch thin wall conduit. †Fits ¾-inch thin wall conduit.

ONE-HOLE CONDUIT STRAP

For Heavy Wall Conduit

Malleable Iron—Galvanized



For heavy duty use One-Hole Malleable Iron Conduit Straps. They are a giant for strength and easily carry the load. They are specified by Railroads, Stock Yards and large industrial institutions.

Cat. No.	Size In.	Size Fastening Hole, In.	Std. Pkg.	Wt. Lbs. Per 100
240	⅜	¼	100	4
241	½	5/16	100	6
242	¾	5/16	100	10
243	1	5/16	100	14
244	1¼	⅜	50	18
245	1½	7/16	50	32
246	2	½	25	68
247	2½	⅝	25	95
248	3	⅝	25	140
249	3½	11/16	10	210
250	4	11/16	10	275

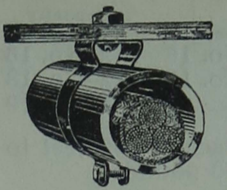
AUSTIN STEEL PERFORATED STRAP OR EXTENSION BAR

Made of good quality soft steel, having cleanly punched, uniformly spaced holes. Can be easily cut with a cold chisel.

Cat. No.	Width	Thickness Gauge	Standard Length	Standard Package
930	¾	16	5 Ft.	1000 Ft.
931	⅞	16	5 Ft.	1000 Ft.
932	1	14	5 Ft.	1000 Ft.
933	1⅛	12	5 Ft.	1000 Ft.
934	1¼	12	5 Ft.	1000 Ft.

MINERALLAC HANGERS

FOR CONDUIT AND CABLE



These hangers are made of Cadmium-plated steel or Everdur metal, and are much stronger than cast iron hangers for the same purpose. They are easily and quickly put in place, so open wiring, conduit and cable may be run with greater rapidity and be more compactly arranged than by the use of other hangers.

These hangers have been approved by the Underwriters Laboratories for use on circuits up to 300 volts when mounted directly on the surface wired over. For voltages from 300 to 550 volts these hangers must be installed with spacers under the base of the hanger or mounted on metal racks or brackets so as to hold the conductors at least one inch from the surface wired over. For voltages above 550 volts the hangers should be used with an appropriate insulating bushing having necessary dielectric strength, the hangers being mounted on metal racks or brackets to hold the conductors far enough from the surface wired over to preserve the required electrical clearance.

Steel Minerallac Hangers

Cat. No.	Conduit Size Rigid	Conduit Size Thin Wall	O.D. Conduit Rigid	O.D. Conduit Thin Wall	Opening Inches Min.	Opening Inches Max.	Wt. Lbs. Std. Pkg.	Price Per 100
0	⅜, ½	½	.675 .860	.706	⅝	27/32	5	$3.45
1	¾	¾	1.050	.922	13/16	1 1/16	6½	3.80
2	1	1	1.315	1.165	1 1/16	1 11/32	8	5.00
2½	......	1¼	....	1.510	1 9/32	1½	8¾	5.25
3	1¼	1½	1.660	1.740	1½	1 11/16	10	5.45
4	1½	......	1.900	....	1 11/16	1 31/32	16	6.75
5	2	......	2.375	....	2 7/32	2 15/32	11¾	7.25
6	2½	......	2.875	....	2 11/16	3	13¼	8.10

Everdur Minerallac Hangers

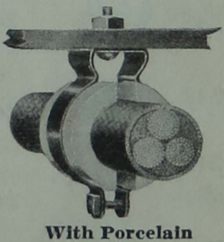
Cat. No.	Conduit Size Rigid	Conduit Size Thin Wall	O.D. Conduit Rigid	O.D. Conduit Thin Wall	Opening Inches Min.	Opening Inches Max.	Wt. Lbs. Std. Pkg.	Price Per 100
0	⅜, ½	½	.675 .860	.706	⅝	27/32	5¼	9.00
1	¾	¾	1.050	.922	13/16	1 1/16	7¼	11.00
2	1	1	1.315	1.165	1 1/16	1 11/32	8¾	15.80
2½	......	1¼	....	1.510	1 9/32	1½	9½	16.50
3	1¼	1½	1.660	1.740	1½	1 11/16	11	17.75
4	1½	......	1.900	....	1 11/16	1 31/32	17¾	25.25
5	2	......	2.375	....	2 7/32	2 15/32	12½	37.00
6	2½	......	2.875	....	2 11/16	3	14¾	45.00

Prices do not include stove bolts.

PORCELAIN BUSHINGS

All styles of these bushings for high voltage work, properly designed to get necessary dielectric and mechanical strength can be furnished.

Porcelain bushings are for use with Minerallac Hanger of the same catalog number.

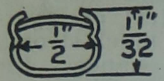


With Porcelain Bushing

Cat. No.	Opening in Inches Min.	Opening in Inches Max.	Wt. Lbs. Std. Pkg.	Price Per 100
1	5/16	½	8	$6.50
2	⅝	27/32	9½	7.00
3	⅞	1 1/16	15	10.00
4	1⅛	1 13/16	22	11.25
5	1 11/32	1 19/32	49	14.00
6	1 13/16	2⅛	60	15.25

WIREMOLD RACEWAY AND FITTINGS

NO. 200 WIREMOLD RACEWAY

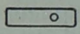
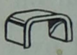
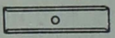
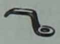
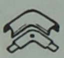
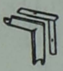
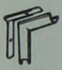
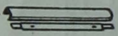
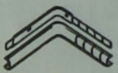
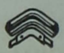
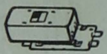
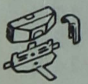
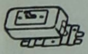
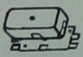
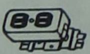
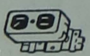
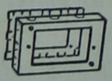
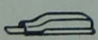
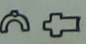


Capacity Single Conductor		Capacity Twisted Pair
2–No. 14	4–No. 16	2–No. 16
------------	4–No. 18	2–No. 18
------------	------------	2–No. 19

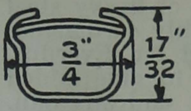
Furnished in 5-foot lengths. Packed 100 feet to carton. Weight per 1000 feet, 160 pounds.

No. **200** Wiremold	per foot	**$0.085**
No. **200-F** Flexible Fitting (18-in.)	per 100	**112.00**

NO. 200 WIREMOLD FITTINGS

Installation Fittings		Cat. No.	Std. Pkg.	Unit Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
201 	**Coupling** 1½ inches long.	**201**	50	10	¼	**$1.30**
202 	**Bushing**	**202**	200	50	½	**1.60**
203 	**Supporting Clip** 2½ inches long.	**203**	50	10	½	**1.80**
✓205 	**One Hole Strap**	**205**	50	10	¼	**1.20**
206	**Connection Cover**	**206**	50	10	¼	**1.20**
✓211 	**90° Flat Elbow** Legs 1¾ inches long.	**211**	50	5	2¼	**14.10**
✓211 LH 	**Internal Twisted Elbow** **(For 90° Twist with 90° Turn)** Legs 2½ inches long.	**211-LH**	20	5	1¾	**30.00**
✓211 RH 	**Internal Twisted Elbow** **(For 90° Twist with 90° Turn)** Legs 2½ inches long.	**211-RH**	20	5	1¾	**30.00**
214 	**Pull Box** 5 inches long.	**214**	20	5	1½	**15.00**
✓217 	**Adjustable Internal Elbow** Legs 3½ inches long.	**217**	50	5	5½	**17.50**
✓218 	**External Elbow** Legs 1⅝ inches long.	**218**	50	5	2¼	**15.00**
220 	**Lumiline Lampholder Box** 3¼"L.—1⅝"W.—⅞"D.	**220**	10	1	2	**50.00**
228 	**Adjustable Junction Box** 2½"L.—¾"W.—⅞"D.	**228**	20	5	2¼	**34.00**
✓240 	**S.P. Switch with Box** **10A., 125V.; 5A., 250V.** 3¼"L.—1⅝"W.—⅞"D.	**240**	20	1	5¾	**87.50**
242 	**Utility Box** 3¼"L.—1⅝"W.—⅞"D.	**242**	20	1	3¼	**42.50**
✓243 	**Duplex Receptacle** **15A, 125V; 10A, 250V** 3¼"L.—1⅝"W.—⅞"D.	**243**	20	1	4¾	**65.60**
243 A 	**Radio Receptacle** **(With Ground-Antenna Plug Cap)**	**243-A**	20	1	5¾	**148.50**
✓251 	**Extension Adapter** 4¾"L.—3"W.—½"D.	**251**	20	1	5¾	**47.50**
289 	**Reducing Connector**	**289**	20	5	1	**13.80**
289 A 	**Adapter**	**289-A**	50	10	½	**2.00**

NO. 500 WIREMOLD RACEWAY

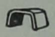
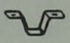
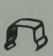
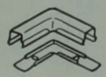
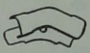
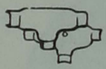
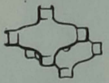
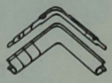
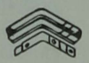
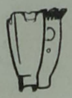
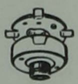
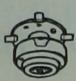
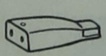
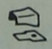


Capacity Single Conductor		Capacity Twisted Pair
2–No. 10	3–No. 14	2–No. 16
2–No. 12	6–No. 16	2–No. 18
------------	6–No. 18	3–No. 19

Furnished in 10-foot lengths. Packed 100 feet to carton. Weight per 1000 feet, 340 pounds.

No. **500** Wiremold	per foot	**$0.098**
No. **500-F** Flexible Fitting (18-in.)	per 100	**114.00**

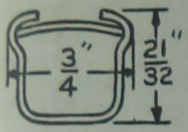
NO. 500 WIREMOLD FITTINGS

Installation Fittings		Cat. No.	Std. Pkg.	Unit Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
502 	**Bushing**	**502**	200	50	¾	**$1.80**
504 	**One or Two Hole Strap**	**504**	500	50	9	**1.20**
506 	**Connection Cover**	**506**	200	50	2	**1.20**
511 	**90° Flat Elbow** Legs 2 inches long.	**511**	50	5	4½	**14.80**
512 	**45° Flat Elbow** Legs 1⅜ inches long.	**512**	20	5	1¾	**16.80**
515 	**Tee** 3¾"L.—2"W.—¾"D.	**515**	50	5	8½	**21.70**
516 	**Cross** 3¾"L.—2¾"W.—¾"D.	**516**	20	5	4	**27.20**
517 	**Adjustable Internal Elbow** Legs 3 5/16 inches long. One leg scored.	**517**	50	5	9	**17.00**
518 	**Adjustable External Elbow** Legs 2⅝ inches long. One leg scored.	**518**	50	5	6¾	**16.00**
519 	**Corner Box** 3½"L.—1½"W.—1 5/16"D.	**519**	20	5	4¼	**40.30**
526 	**Keyless Receptacle** **660 Watt, 250 Volt** 2½" dia. 1¾" deep.	**526**	50	5	19	**60.00**
527 	**Plug Receptacle** **15A., 125V.; 10A., 250V.** 2½" dia. 1¼" deep.	**527**	50	5	16	**81.40**
588 	**Open Work Coupling** 2⅞"L.—1½"W.—⅞"D.	**588**	20	5	3½	**31.50**
599 	**Connector** **(For Metal Moulding Fittings)**	**599**	20	4	¾	**3.70**

600	Bender (for Nos. 200-500-700) each	**$4.00**
600M	Bender Adapter (furnished on request for each No. 600 bender in use).	
610	Mitre Box each	**10.00**
611	Mitre Box Guide Fingers per 100	**50.00**
Wiremold Enamel, ½-pint cans	per 100	**50.00**

WIREMOLD RACEWAY AND FITTINGS

NO. 5700 AND 700 WIREMOLD RACEWAY

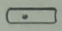
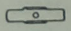
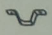
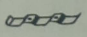
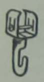
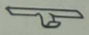
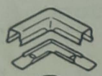
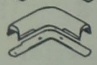
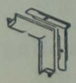
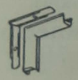
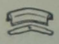
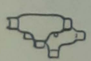
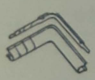
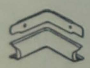
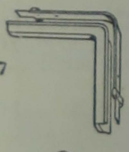
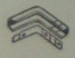
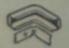


Capacity Single Conductor		Capacity Twisted Pair
2–No. 10	4–No. 14	4–No. 16
4–No. 12	10–No. 16	4–No. 18
....	10–No. 18	4–No. 19

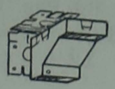
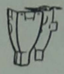
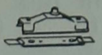
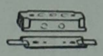
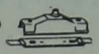
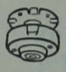
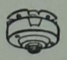
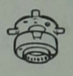
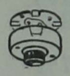
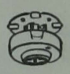
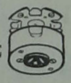
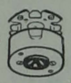
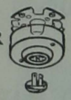
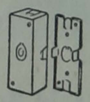
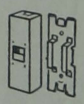
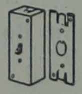
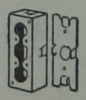
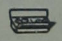
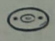
Furnished in 10-foot lengths. Packed 100 feet to carton. Weight per 1000 feet, 360 pounds.

No. 700 Wiremold	per foot	$0.112
No. 700-F Flexible Fitting (18-in.)	per 100	114.50

NO. 5700 AND 700 WIREMOLD FITTINGS

Installation Fittings	Cat. No.	Std. Pkg.	Unit Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
	Coupling				
5701 	5701	200	50	3¾	$1.70
	Bushing				
702	702	200	50	¾	2.00
	Supporting Clip				
5703 	5703	500	50	13	2.00
	One or Two Hole Strap				
704 	704	500	50	15¾	2.00
	Connection Cover				
706	706	200	50	2¼	1.30
	Multiple Strap				
5707 	5707	200	10	6¼	5.00
	Fixture Hook				
5708 	5708	20	10	1½	18.80
	Ground Clamp				
5709 	5709	20	5	1	8.80
	90° Flat Elbow				
711 	711	50	5	8	16.00
	90° Flat Elbow				
5711 	5711	100	10	17	22.00
	Legs 2⅞ inches long.				
	Internal Twisted Elbows (For 90° Twist with 90° Turn)				
5711 LH 	5711-LH	20	5	4	30.00
	Legs 3 inches long.				
5711 RH 	5711-RH	20	5	4	30.00
	Legs 3 inches long.				
	45° Flat Elbow				
5712 	5712	20	5	2	22.50
	Legs 1½ inches long.				
	Tee				
5715 	5715	50	5	9½	27.50
	3¾"L.—2"W.—1"D.				
	Adjustable Internal Elbow				
717 	717	50	10	10¼	18.00
	Legs 3 5/16 inches long. One leg scored.				
	Internal Elbow				
5717 	5717	100	10	15¾	24.00
	Legs 2⅝ inches long.				
	Internal Pull Elbow				
5717 A 	5717-A	10	1	4¾	50.00
	Legs 6 inches long.				
	Adjustable External Elbow				
718 	718	50	10	8	17.00
	Legs 2¾ inches long. One leg scored.				
	External Elbow				
5718 	5718	100	10	11½	24.00
	Legs 1¾ inches long.				

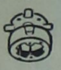
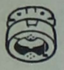
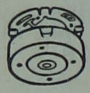
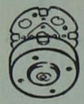
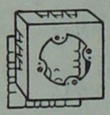
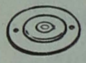
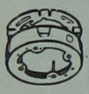
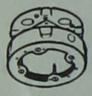
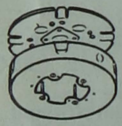
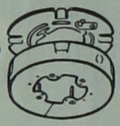
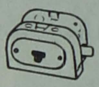
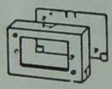
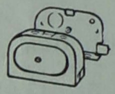
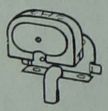
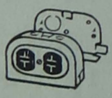
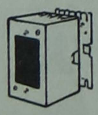
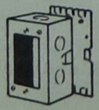
NO. 5700 AND 700 WIREMOLD FITTINGS

Installation Fittings	Cat. No.	Std. Pkg.	Unit Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
	Corner Box				
5719 	5719	20	5	8½	$45.90
	2½"L.—2⅜"W.—2½"D.				
	Streamline Corner Box				
5719 A 	5719-A	20	5	5½	40.00
	3⅜"L.—1¾"W.—1 5/16"D.				
	Narrow Fittings No. 5720 with ⅛-inch Male Nipple				
5720 	5720	50	5	10	47.90
	3¾"L.—⅞"W.—1"D.				
5720 A 	5720-A	20	5	4¾	55.00
	3¾"L.—⅞"W.—1"D.				
	With ⅜-inch Male Nipple				
5720 B 	5720-B	50	5	9½	47.90
	3¾"L.—⅞"W.—1"D.				
	Utility Box				
5721 	5721	50	5	16½	35.00
	3" dia., 1¼" deep.				
	Rosette				
5724 	5724	20	5	7½	49.00
	3" dia., 1¼" deep.				
	Receptacle Base 660W., 250V.				
5725 	5725	50	5	20¾	80.00
	3" dia., 1¼" deep.				
	Keyless Receptacle 660W., 250V.				
5726 	5726	50	5	21	60.00
	3" dia., 1¾" deep.				
	Plug Receptacle 15A., 125V.; 10A., 250V.				
5727 	5727	50	5	18½	81.40
	3" dia., 1¼" deep.				
	Receptacle 2-Wire, 3-Pole with Ground				
5727 G 	5727-G	10	1	5½	180.00
	Receptacle 3-Wire, 3-Pole without Ground				
5727 P 	5727-P	10	1	5½	180.00
	Radio Receptacle				
5727 R 	5727-R	10	1	5½	146.00
	Utility Box				
5728 	5728	50	10	18	40.00
	4¼"L.—1⅝"W.—1"D.				
	Lumiline Lampholder Box				
5728 A 	5728-A	10	1	4	53.50
	4¼"L.—1⅝"W.—1"D.				
	S.P. Switch with Box 10A., 125V.; 5A., 250V.				
5728 B 	5728-B	10	1	5	95.80
	4¼"L.—1⅝"W.—1"D.				
	Utility Box (Condulet Type)				
5729 	5729	20	10	6½	47.50
	4¼"L.—1⅝"W.—1"D.				
	Connector Block*				
5730	5730	20	5	1¼	20.00
	Connector Block†				
5730 A . 	5730-A	50	10	1	40.00
	Blank Cover‡				
5731 	5731	50	5	3¾	11.70
	2⅜" dia., ¼" deep.				

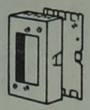
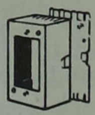
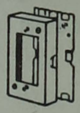
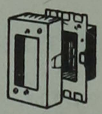
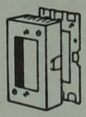
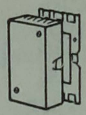
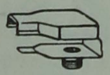
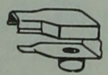
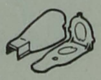
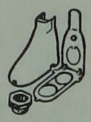
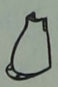
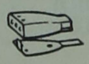
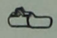
*660W., 250V. For use with 5721, 5724, 5732, and 5733. †660W., 250V. For use with 5720, 5720A, 5720B, and 5728. ‡For use with 5732 and 5733.

WIREMOLD RACEWAY AND FITTINGS

NO. 5700 AND 700 WIREMOLD FITTINGS

Installation Fittings	Cat. No.	Std. Pkg.	Unit Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
	Outlet Box				
5732 	**5732**	50	5	12½	$40.00
	2½" dia., 1" deep.				
	Outlet Box				
5733 	**5733**	50	5	14¼	41.20
	3" dia., 1" deep.				
	Blank Extension Box				
5734 	**5734**	20	5	13	65.00
	4¾" dia., 1³⁄₁₆" deep.				
	Blank Extension Box				
5734 A 	**5734-A**	20	5	14	62.50
	4¾" dia., 1³⁄₁₆" deep.				
	Distribution Box				
5735 	**5735**	20	1	17¾	88.80
	4¾"L.—4¾"W.—1⅝"D.				
	Blank Cover				
5736 	**5736**	50	5	10	17.00
	4³⁄₁₆" dia., ⁷⁄₁₆" deep. For No. 5735-37-37A-38-38A-39-39A, 1035-39.				
	Extension Boxes				
5737 5737 A 	**5737**	50	5	28¾	65.00
	4¾" dia., 1" deep.				
	5737-A	50	5	37¾	65.00
	5½" dia., 1" deep.				
	Fixture Boxes				
5738 5738 A 	**5738**	50	5	32	59.00
	4¾" dia., 1" deep.				
	5738-A	50	5	41	59.00
	5½" dia., 1" deep.				
5739 	**5739**	20	5	22½	72.80
	6⅝" dia., 1" deep.				
	Extension Box				
5739 A 	**5739-A**	20	5	20¾	84.00
	6⅝" dia., 1" deep.				
	S.P. Switch with Box 10A., 125V.; 5A., 250V.				
5740 	**5740**	20	1	11	102.50
	4³⁄₁₆"L.—2½"W.—1⅛"D.				
	Switch and Receptacle Box				
5741 	**5741**	20	1	11¾	68.00
	4⅝"L.—2⅞"W.—1⅝"D.				
	Junction Box				
5742 	**5742**	20	5	7¾	56.70
	4³⁄₁₆"L.—2½"W.—1⅛"D.				
	Adjustable Junction Box				
5742 A 	**5742-A**	20	5	9	78.70
	4³⁄₁₆"L.—2½"W.—1⅛"D.				
	Duplex Receptacle and Box 15A., 125V.; 10A., 250V.				
5743 	**5743**	20	5	11¼	88.80
	4³⁄₁₆"L.—2½"W.—1⅛"D.				
	Switch and Receptacle Boxes				
5744 	**5744**	20	1	18¾	97.50
	1 Gang—4⅝"L.—2⅞"W.—2¾"D.				
	5744-2	10	1	13	165.00
	2 Gang—4¾"L.—4¾"W.—2¾"D.				
	5744-3	10	1	16	195.00
	3 Gang—6½"L.—4¾"W.—2¾"D.				
	Comb. Switch and Recept. Box				
5745 	**5745**	20	1	13¾	70.80
	4⅝"L.—2⅞"W.—1¾"D.				

NO. 5700 AND 700 WIREMOLD FITTINGS

Installation Fittings	Cat. No.	Std. Pkg.	Unit Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
	Switch and Receptacle Boxes				
5747 	**5747**	20	1	11½	$57.00
	1 Gang—4⅝"L.—2⅞"W.—1⅝"D.				
	5747-2	10	1	8¼	127.50
	2 Gang—4¾"L.—4¾"W.—1⅝"D.				
	5747-3	10	1	11	152.50
	3 Gang—6½"L.—4¾"W.—1⅝"D.				
5748 	**5748**	20	1	13½	63.00
	1 Gang—4⅝"L.—2⅞"W.—1¾"D.				
	5748-2	10	1	9	132.50
	2 Gang—4¾"L.—4¾"W.—1¾"D.				
	5748-3	10	1	12¼	165.00
	3 Gang—6½"L.—4¾"W.—1¾"D.				
	Receptacle Box				
5748 S 	**5748-S**	20	1	9¾	55.00
	4⅝"L.—2⅞"W.—¹⁵⁄₁₆"D.				
	Switch and Receptacle Box				
5749 	**5749**	20	1	12½	105.10
	4⅝"L.—2⅞"W.—2³⁄₁₆"D.				
	Extension Adapters				
5751 5752 5753 	**5751**	20	1	8½	57.00
	1 Gang—4⅝"L.—2⅞"W.—¹⁵⁄₁₆"D.				
	5752	10	1	6	143.80
	2 Gang—4¾"L.—4¾"W.—¹⁵⁄₁₆"D.				
	5753	10	1	7½	172.50
	3 Gang—6½"L.—4¾"W.—¹⁵⁄₁₆"D.				
	Blank Extension Box				
5760 	**5760**	20	1	9½	66.60
	4⅝"L.—2⅞"W.—¹⁵⁄₁₆"D.				
	Special Nipple				
5780	**5780**	50	5	2¼	14.00
	(With ½" locknut.) ⅜" internal thread. ½" external thread.				
	Box Connectors				
5781 5781 A	**5781**	50	5	2¾	22.00
	(½-inch male.)				
	5781-A	20	5	2¼	32.50
	(¾-inch male.)				
	Pipe Connectors				
5782 5782 A	**5782**	50	5	4½	25.00
	(½-inch female.)				
	5782-A	20	5	3	35.00
	(¾-inch female.)				
	Elbow Box Connector				
5783 	**5783**	20	5	2¾	36.30
	2⅛"L.—1¼"W. (½" male).				
	Elbow Pipe Coupling				
5784 	**5784**	20	5	3½	36.30
	2⅛"L.—1¼"W. (½" female).				
	Combination Connector				
5785 	**5785**	50	5	7½	22.00
	2½"L.—1⅝"W.—1³⁄₁₆" D.				
	Adjustable Offset Connector				
5786 	**5786**	20	5	5½	52.50
	2¾"L.—1⅝"W.—2⅝"D.				
	Kick Plate				
5787 	**5787**	10	1	4	38.00
	3"L.—1⅝"W.—1⅝"D.				
	Open Work Coupling				
5788 	**5788**	20	5	4¾	35.40
	3"L.—2¼"W.—¾"D.				
	Armored Cable Connectors				
5790 	**5790**	50	5	2	10.00
	(Use on special approval only.)				
5790 A	**5790-A**	50	5	2¾	10.00

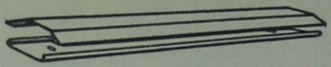
600 Bender (for Nos. 200-500-700)......each $4.00

600M Bender Adapter (furnished on request for each No. 600 bender in use).

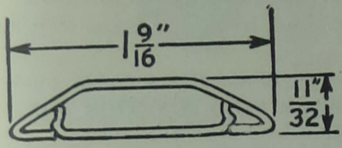
Wiremold Enamel, ½-pint cans........per 100 50.00

WIREMOLD RACEWAY AND FITTINGS

NO. 1500 PANCAKE WIREMOLD OVERFLOOR RACEWAY



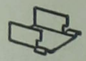
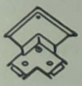
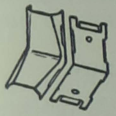
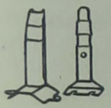
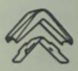
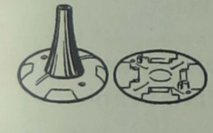
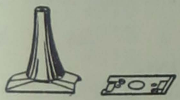
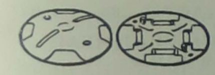
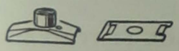
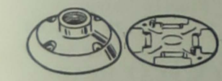
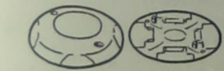
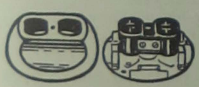
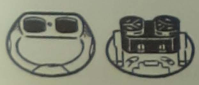
Furnished in 10-foot lengths. Packed 100 feet to carton. Weight per 1000 feet, 500 pounds.



Capacity Single Conductor	Capacity Twisted Pair
4—No. 12	3—No. 16
4—No. 14	4—No. 18
6—No. 16	5—No. 22
8—No. 18	

Price, No. 1500 Pancake Wiremold......per ft. **$0.24**

NO. 1500 WIREMOLD FITTINGS

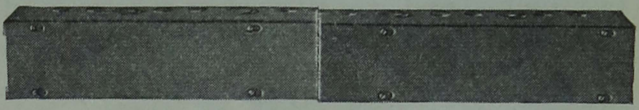
Installation Fittings	Cat. No.	Std. Pkg.	Unit Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
	**Bushing** 1502	50	10	½	$4.00
	**90° Flat Elbow** 1511	20	5	3¼	20.00
	**Internal Elbow** 1517 Each leg 2½ inches.	20	5	4½	20.00
	**Internal Elbow** 1517A	20	5	3½	31.00
	**External Elbow** 1518 Each leg 2½ inches long.	20	5	4¼	24.00
	**Telephone Outlet** 1524 4 inches dia., 3½ inches high.	10	1	6	90.00
	**Narrow Telephone Outlet** 1524A 3¼"L.—1 11/16"W.—3⅝"H.	10	1	3½	80.00
	**Junction Box** 1542 4 inches dia., ½-inch deep.	20	5	7	40.00
	**Narrow Junction Box** 1542A 3¼"L.—1 11/16"W.—1 3/16" Overall.	20	5	5	34.00
	**Brass Recept. Base for Std. Floor Receptacle having ¾" Stem** 1542-B	10	1	9½	254.00
	**Junction Box—Deep Type** 1542-D	20	5	7	40.00
	**Duplex Receptacle** 15A. 125V., 10A. 250V. 1543 4 inches dia., 1½ inches deep.	10	1	7	110.00
	**Polarized Duplex Receptacle** 3 Wire 15A. 125V., 10A. 250V. 1543A 4 inches dia., 1½ inches deep.	10	1	6¾	280.00

SQUARE D SCREW COVER DUCT

Furnished with keyhole slots. This eliminates necessity of entirely removing screws when cover is removed. It is carried in stock in 1, 2, 3 and 4-foot lengths. All holes are punched to template so that parts are interchangeable. Sufficient knockouts are provided for convenience of installation.

Finished in black enamel.

SCREW COVER DUCT

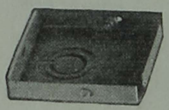


4448

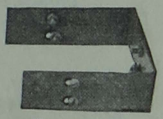
Cat. No.	Size	Length	Wt. Lbs.	List Price
4412	4x4	1 foot	3	$1.45
4424	4x4	2 foot	6	2.90
4436	4x4	3 foot	9	4.35
4448	4x4	4 foot	12	5.80
4612	4x6	1 foot	3½	1.90
4624	4x6	2 foot	7	3.80
4636	4x6	3 foot	10½	5.70
4648	4x6	4 foot	14	7.60
6612	6x6	1 foot	4	2.50
6624	6x6	2 foot	8	5.00
6636	6x6	3 foot	12	7.50
6648	6x6	4 foot	16	10.00
*6624A	6x6	2 foot	8	5.00
*6636A	6x6	3 foot	12	7.50
*6648A	6x6	4 foot	16	10.00

*Gutter without knockouts.

SCREW COVER DUCT FITTINGS

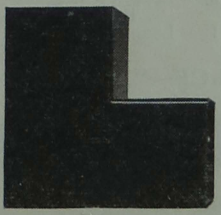


End



Connector

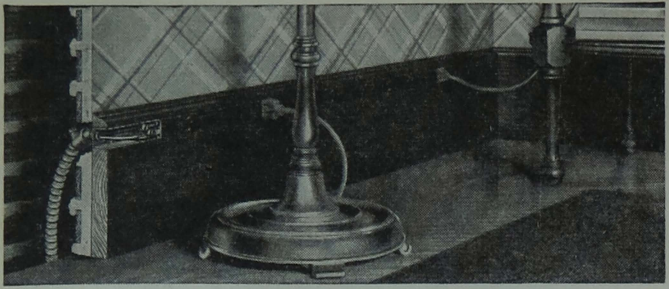
	ENDS				CONNECTORS		
Size	Cat. No.	Comb. K.O.	Wt. Lbs.	List Price	Cat. No.	Wt. Lbs.	List Price
4x4	44E	½-¾-1-1¼	¼	$0.40	44C	¾	$0.40
4x6	46E	½-¾-1-1¼	½	.50	46C	½	.50
6x6	66E	1¼-1½-2	1	.70	66C	1	.65



Elbow

	ELBOWS			TEES		
Size	Cat. No.	Wt. Lbs.	List Price	Cat. No.	Wt. Lbs.	List Price
4x4	44L	3	$4.20	44T	4	$4.20
4x6	46L	4	4.70	46T	5	4.70
6x6	66L	5	5.30	66T	7	5.30

"PLUG-IN" STRIP



The "New Method of Circuit Wiring" is a wiring system, by means of which electrical contractors may now **sell complete adequacy,** electrically, to any building.

It provides a means of "plugging-in" every 6 or 18 inches all around the room.

This adequacy has been in demand since the beginning of the use of electrical current. Now you can sell this adequacy.

Why should any room or any building be only partially wired for use by the occupant?

Why should the electric wiring in a building be so abbreviated as to require the occupant to do the balance of the wiring, with the result of festooning cords all over the place?

The requirement for a place to "plug-in" is sold to your public. But the means have not been provided—until the advent of the "New Method of Circuit Wiring"—"Plug-In" Strip.

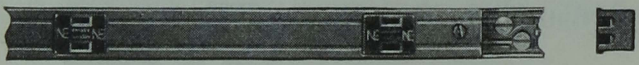
Sell more electric materials in every job.

Sell your customer—Architect, Owner, Builder, Store—the engineering, the knowledge of years' experience combined with skilled workmen's help to develop adequate, efficiently and sufficiently wired homes for today, tomorrow and the future.

"Plug-In" Strip is protected by U. S. Patents Nos. 1,995,855; 2,072,703, 2,119,777; 2,119,782; 2,136,583. Canadian Patents Nos. 355,967; 367,515; 367,516, and other patents allowed and pending.

Listed and approved by the Hydro Power Commission, the Underwriters' Laboratories, Inc., and complies with the regulations of the National Electrical Code.

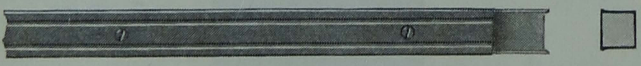
TYPE CF—CONCEALED FLUSH TYPE



Each length of "Plug-In" Strip is furnished with 2 Cat. No. 690 Copper Jumpers, a suitable quantity of Mounting Clips No. 607 and No. 6 wood screws 1¼″ and 2″ long.

Cat. No.	Lgth.	Plug-Ins Per Length	Unit Pkg.	Std. Pkg.	Wgt. Lbs. Std. Pkg.	Price Per Foot Unit Pkg.	Price Per Foot Std. Pkg.
CF-609-36	9′	3	1 Length	10 Lengths	42	**$ .32½**	**$ .27**
CF-609-18	9′	6	1 Length	10 Lengths	43	**.34**	**.28**
CF-606-18	6′	4	1 Length	10 Lengths	28	**.36**	**.30**
CF-603-18	3′	2	1 Length	10 Lengths	15	**.45**	**.37½**
CF-601½-18	18″	1	1 Length	10 Lengths	9	**.96**	**.80**
CF-606-6	6′	12	1 Length	10 Lengths	29	**.45**	**.37½**
CF-603-6	3′	6	1 Length	10 Lengths	15	**.60**	**.50**
CF-602-6	2′	4	1 Length	10 Lengths	11	**.75**	**.62½**
CF-601-6	1′	2	1 Length	10 Lengths	6	**.90**	**.75**
CF-600½-6	6″	1	1 Length	5 Lengths	1½	**1.80**	**1.50**

TYPE CF—"FILL-IN" STRIP

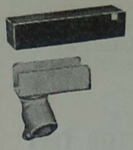


A "Fill-In" blank raceway to "Fill-In" ends, corners, behind radiators or other inaccessible places where "Plug-Ins" could not be used.

6 Foot Length Plain wire raceway to "Fill-In" or for low potential wiring.

CF-615	6′	0	1 Length	10 Lengths	23	**$ .15**	**$ .12**

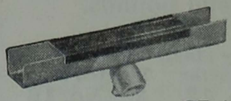
"PLUG-IN" STRIP FITTINGS



END FEED JUNCTION BOX

Has 45° swivel, set screw connector for A.B.C. Cable.

Cat. No.	Unit Pkg.	Std. Pkg.	Wgt. Std. Pkg.	Price Each Unit Pkg.	Price Each Std. Pkg.
CF-616		10	4	**$ .45**	**$ .30**



CENTER FEED JUNCTION BOX

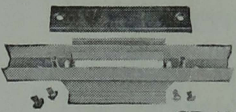
Has 45° swivel, set screw connector for A.B.C. Cable.

CF-618		10	5¼	**.52**	**.34**

CENTER FEED JUNCTION BOX

Has ½″ threaded hub for ½″ conduit or cable connectors.

CF-628	1	10	5¼	**.52**	**.34**



SWITCH AND OUTLET BOX COVER

For use with outlet and switch boxes. Unwired. 7″ long.

CF-629	1	5	1½	**.57**	**.38**

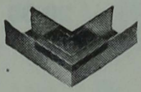
STRAIGHT END JUNCTION BOXES

Has threaded hub in one end for standard connectors. Unwired, 1 23/32″ overall, 1 5/32″ housing.

CF-627	1	5	2	**.34**	**.23**

For connecting A.B.C. Cable or Flexsteel. Has set screw connector in one end. Unwired, 2 1/16″ overall, 1 5/32″ housing.

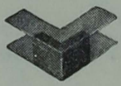
CF-617	1	5	2	**.34**	**.23**



90° FLAT BLANK ELBOW

Unwired. 2¼″x2¼″ overall.

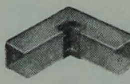
CF-636	1	5	2	**.19**	**.14**



90° EXTERIOR BLANK ELBOW

Unwired. 2⅛″x2⅛″ exposed dimension, 1⅜″x1⅜″ concealed dimension.

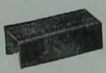
CF-637	1	5	2	**.19**	**.14**



90° INTERIOR BLANK ELBOW

Unwired. 1⅜″x1⅜″ exposed dimension. 2⅛″x2⅛″ concealed dimension.

CF-638	1	5	2	**.20**	**.14**



JOINER COUPLING

Covers open ends of adjoining parts. 2 5/16″ long.

CF-644	10	50	2½	**.05**	**.04**

COUPLING STRIP

3 foot lengths. Same shape as 644 coupling.

CF-614	1	5	3	**.48**	**.36**

END FITTING

Covers open end at termination of "Plug-In" Strip run. 1⅝″ long.

CF-680	5	20	6¾	**.06**	**.04**

No. 5 x 4″ BLACK FLAT HEAD TOGGLE BOLT

For mounting "Plug-In" Strip.

619-A	50	50	11	**.07**	**.06**

No. 6 x 1¼″ BLACK FLAT HEAD WOOD SCREW

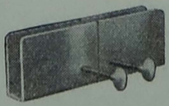
For mounting "Plug-In" Strip.

6x1¼″	50	1000	15	**7.20**	**6.00** **Per M**

No. 6 x 2″ BLACK FLAT HEAD WOOD SCREW

For mounting "Plug-In" Strip.

6x2″	50	1000	15	**9.00**	**7.50** **Per M**

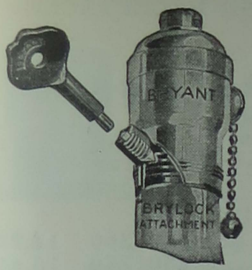


CUTTING GAUGE

For cutting desired lengths of "Fill-In" Strip or capping. Two thumb screws hold strip rigid while cutting, use 32 tooth hacksaw blade.

623	1	1	1½	**2.25**	**2.2**

BRYLOCK LOCK ATTACHMENT



No. AA-15 with "Brylock" Attachment Showing Consrtuction

In places where the theft of lamps presents a problem, the use of Bryant sockets equipped with the Brylock attachment is recommended. The Brylock attachment consists of a pointed and hardened steel screw supported by a threaded sleeve. The sleeve is fastened into the socket in such a position that when the pointed screw is turned by the special Brylock key it is forced to pierce the metal of the lamp base and effectively prevents the lamp from being turned. Brylock keys are not furnished with Brylock sockets and must be ordered separately.

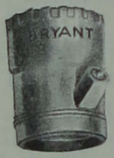
BRYANT MEDIUM BASE SOCKETS, SOCKET BODIES AND RECEPTACLES WHICH CAN BE SUPPLIED WITH BRYLOCK ATTACHMENT

The price of a Bryant socket, socket body or receptacle with Brylock attachment is **$32.00** list per 100 attachments more than the price of the same device without the locking feature.

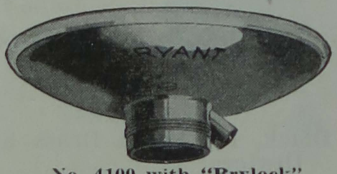
A standard package of Brylock devices is 100 identical Brylock devices, carton, 25; except when the standard package of a regular device is less than 100, or the carton is less than 25 under which conditions the regular standard package and carton quantities will apply to the device when equipped with the Brylock attachment.

Cat. No.	Cat. No.	Cat. No.
10	3834	4317
12	3882	9386
13	*4100	9392
15	*4102	35024
34	*4104	50717
80	4310	50760
81	4312	50768
83	4313	60018
85	4314	60020
95	4315	....

*When equipped with Brylock attachment Uno shade-holder cannot be used.

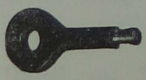


No. 83 with "Brylock" Attachment



No. 4100 with "Brylock" Attachment

KEY FOR BRYLOCK SOCKETS



Brylock keys are not supplied with Brylock equipped sockets.

Mfrs. No.	Description	Price Per 100
631	Key for Brylock Attachment	**$54.00**

BRYANT SPECIAL FINISHES

Orders for Devices Embodying Special Features are Accepted Subject to Approval by the Manufacturer

For Brass Shell Sockets, Socket Type Devices and Parts, Canopy Switch, Fixture Specialties, Shade Holders, Attachment Plug Caps and Flush Plates

General—The standard finish of all brass shell devices and brass flush plates, unless otherwise noted, is brush brass, which will be supplied when the finish is not specified. Standard and special finishes on all devices of one catalog number may be assorted to make up the standard package quantity, which will be the same as though all were standard finish.

Assortments of catalog numbers may be made only as indicated in the catalog pages where the devices are listed. Prices on all special finishes other than those listed, including gold, will be quoted on application. Sample of finish desired should always be submitted to avoid mistakes and delays.

Socket Type Devices

Quantity Discounts—When socket type devices or metal covered attachment plug caps in special finishes are ordered in quantities the list prices for finishes only will be reduced as follows: lots of 250–499, one catalog number, one shipment, one finish, 10%; lots of 500-999, one catalog number, one shipment, one finish, 20%; lots of 1000 or over, one catalog number, one shipment, one finish, 50%. For mogul sockets in special finishes add double the prices which apply to standard sockets.

Flush Plates

Special Finishes—On another page is given complete information as to special finishes in which metal plates can be furnished and prices applying to these finishes.

Special Metals—On another page is given complete information as to special metals in which flush plates can be furnished and prices applying to these special metal plates.

Surface Switch Covers

The standard finish on all metal covers of surface switches unless otherwise noted is polished nickel which will be supplied when the finish is not specified. For covers in any other finish, except chromium, gold, or silver, add to list **$11.00** per 100. Chromium, gold, or silver finish prices on application.

BRYANT SPECIAL FINISHES

For Brass Shell Sockets, Socket Type Devices and Parts, Canopy Switch, Fixture Specialties, Shade Holders, and Attachment Plug Caps

Orders for Devices Embodying Special Features are Accepted Subject to Approval by the Manufacturer

Finish	Class
Barff, Bauer Imitation (Lacquer)	A
Brass, Sand Blast Antique	E
Brass, Sand Blast Brush	D
Brass, Flemish	B
Brass, Lemon	A
Brass, Oxidized	B
Brass, Polished	A
Bronze, Brush	B
Bronze, Japanese (Dark)	B
Bronze, Polished	B
Bronze, Statuary (Light)	B
Black Lacquer	A
Chromium, Dull or Polished	E
Copper, Antique	C
Copper, Mottled	B
Copper, Brush	B
Copper, Oxidized	B
Copper, Polished	B
Enamel, White Imitation (Lacquer)	A
Gun Metal	B
Nickel, Dull	B
Nickel, Polished	B
Silver, Butler's (Brushed)	F
Silver, Satin	F
Silver, Oxidized	F
Silver, Polished	F
Verde Antique (Lacquer)	A

Class of Finish	1 Brass Shell Key, Keyless and Push Devices with Caps including Pendent Switches Complete Add to List	2 Brass Shell Pull Devices with Caps Complete Also Cat. Nos. KE and 653 Add to List	3 Brass Shell Key, Keyless and Push Bodies, All Shade-Holders Add to List
A	$6.50	$8.50	$3.50
B	11.00	13.00	5.50
C	17.00	19.50	8.50
D	19.50	21.50	10.00
E	23.50	25.50	12.00
F	21.50	32.00	11.00

Class of Finish	4 Brass Shell Pull Bodies Jewels Also Cat. Nos. JB and JD Add to List	5 Brass Shell Socket Caps, Brass-Mounted Porcelain Socket Caps Also Cat. Nos. IL-1330 IL-1339 IL-1340 Add to List	6 One-Piece Brass Shell Wall and Wall and Ceiling Sockets and Receptacles and "New Wrinkle" Bases Add to List
A	$5.50	$3.50	$13.00
B	7.50	5.50	17.00
C	11.00	8.50	26.50
D	12.00	10.00	30.00
E	14.00	12.50	32.00
F	21.50	11.00	26.50

BRYANT PARTS

BRASS SHELL SOCKET AND RECEPTACLE PARTS

Interiors for Medium Base Brass Shell Sockets

	Watts	Std. Pkg.	Per 100
Keyless	660	250	$14.34
Keyless, for Short Shell Electrolier Socket	660	250	12.24
Key, Single-Pole	250	250	16.44
Key, Single-Pole	660	250	49.62
Pull, With Chain Guide, Chain and Pendant	250	250	22.76
Pull, With Chain Guide, without Chain or Pendant	250	250	19.16
Pull, Without Chain Guide, Chain or Pendant	250	250	18.76
Push, Non-Removable Buttons	660	250	18.56
Push, Removable Buttons	660	250	28.56
Push, Non-Removable Buttons	250	250	17.52
Push, Removable Buttons	250	250	27.52
Shell Linings for Above Interiors	......	250	.70
Shell Linings for "Brylock" Sockets	......	100	3.04
"Brylock"—Additional List over Corresponding Standard Interiors	......	100	13.14

Chain and Chain Assemblies

	Std. Pkg.	Per 100
No. 6, for Medium Base Pull Devices Not Cut into Lengths	1000 ft.	$5.06
No. 3, for Intermediate and Candelabra Base Pull Devices Not Cut into Lengths	500 ft.	5.06
No. 3 or No. 6, 7½-Inch Pull Chain, with or without Check Ball and with Attached Pendants	250	13.14
Short Chain, No. 810 Splicing Link, 4 Feet Small Black Cord and Small Black Composition Pendent Ball	250	13.14

Composition Pendent Balls

	Std. Pkg.	Per 100
Black, for Small Brass Shell Pull Devices	50	$6.06
Large, for Ceiling Pull Switches, etc.	50	6.06

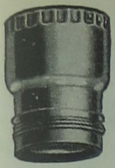
Pull Cord

	Std. Pkg.	Per 100
No. 3, Light Weight, for Small Pull Devices	100 ft.	$1.42
No. 3½, Heavy Weight, for Pull Ceiling Switches	100 ft.	2.82

Sockets with short chain and 4 feet cord, instead of standard chain, will be furnished at an advance in list price per 100 of **$2.00.**

BRYANT FLUTED CATCH LINE

SOCKET BODIES—N. E. C. Standard



Keyless

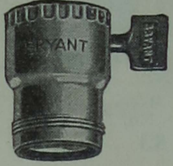
660 Watts—250 Volts

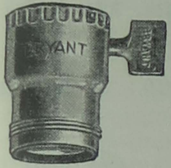
Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
13	25	250	38	$14.00

S. P. Key

250 Watts—250 Volts

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
10	25	250	33	$17.50





S. P. Key Body

660 Watts—250 Volts

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
12	25	250	42	$52.00

Push-Button Body

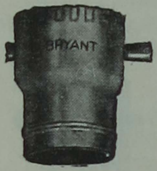
250 Watts—250 Volts

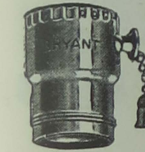
Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
32	25	250	34	$17.50

Single Pole Push

660 Watts—250 Volts

34	25	250	34	19.00





S. P. Pull

250 Watts—250 Volts

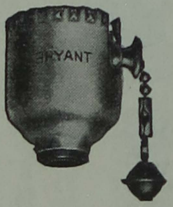
Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
15	25	250	35	$23.50

S. P. Pull Switch Body

3 Amperes—125 Volts

1 Ampere—250 Volts

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
25	10	20	3½	$89.50



SWITCH BODIES

S. P. Pull Ceiling

3 Amp., 125 Volts—1 Amp., 250 Volts

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
20	10	20	3½	$85.00

6 Amp., 125 Volts—3 Amp., 250 Volts

50	10	20	3½	98.00

No. 25 is equipped with a short chain, 4 feet of small cord, and a small composition ball.

Brush brass is standard finish for above devices.

BRYANT FLUTED CATCH LINE

SWITCH BODIES—N. E. C. Standard

Electrolier Pull Ceiling

3 Amp., 125 Volts—1 Amp., 250 Volts

Operating 1-2-1 and 2-off

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
27	10	20	3½	$131.50

Positions: First, circuit 1 on; second, circuit 2 on and 1 off; third, circuits 1 and 2 on; fourth, all off.

SOCKET CAPS—N. E. C. Standard

⅛-Inch Female Cap

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AA	25	250	12	$8.00
CX	25	100	4½	9.00

No. CX same as No. AA but with side outlet bushing. Certain other socket caps may be fitted with insulated side entrance bushings. Add $2.50 per 100 to list price.

¼-Inch Female Cap

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AB	5	25	1¼	$20.00

⅜-Inch Female Cap

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AC	25	100	5½	$12.00

½-Inch Female Cap

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AD	25	50	4	$30.00

⅜-Inch Male Cap

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AG	25	50	2¼	$20.00

Pendent Cap

With composition bushing 13/32-inch diameter.

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AT	25	250	7	$8.00

Pendent Cap

With armored cord grip. Will take cords from ⅜ to ½ inches.

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AQ	25	100	7½	$24.50

Strain Relief Pendent Cap

With porcelain bushing 13/32-inch hole.

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AU	25	100	4	$15.00

⅛-Inch Female Angle Cap

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AM	25	50	2¾	$35.00

⅜-Inch Female Angle Cap

Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
AP	5	25	1½	$40.00

BRYANT FLUTED CATCH LINE

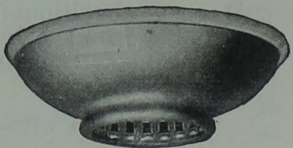
BODY BASES—N. E. C. Standard

Small Brass Covered Base

Outside diameter of base, 2¼ inches; supporting screw spacing, $1\frac{11}{16}$ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
BH	10	100	18	$45.00

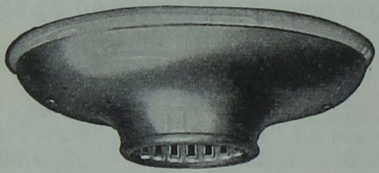
For 3¼ Inch Boxes



Outside diameter base, 3⅝ inches; screw spacings, 2 and 2¾ inches; machine screws furnished for mounting on box; standard finish is brush brass.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
BL	10	50	23	$58.50

For 3¼ and 4-Inch Switch Boxes



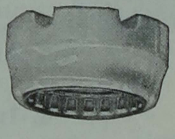
Outside diameter of base, $4\frac{21}{32}$ inches; screw spacing, 2¾ inches for 3¼-inch boxes and 3½ inches for 4-inch boxes; $3\frac{9}{32}$ inches for switch boxes.

Standard finish is brush brass.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
BM	5	50	43	$106.00

PORCELAIN BODY BASES

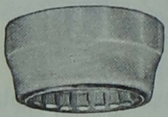
Slotted



Outside diameter of base $2\frac{1}{16}$ inches; screw spacings 1⅛ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
AX	10	100	19	$29.00

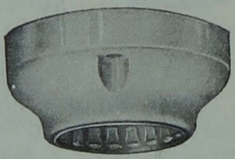
Small Concealed



Outside diameter of base $2\frac{1}{16}$ inches; screw spacings 1⅛ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
AY	10	100	19	$29.00

Large Concealed



Outside diameter of base 2¾ inches; screw spacings, 2¼ inches. Fits type 500 Adapti-boxes, types GN, HM and W, forms 5 and 10, Octagonal Unilets and Form 10 round opening pipe taplets.

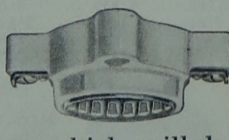
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
AZ	10	100	32	$37.50

Angle Concealed

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
BA	10	100	23	$38.50

Screw spacing 1⅛ inches.

Cleat Base



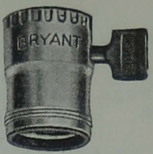
Mfrs. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
AW	10	100	28	$37.50

Screw spacings, $2\frac{5}{32}$ in.

Standard finish is brush brass which will be furnished when no finish is specified.

BRYANT FLUTED CATCH LINE

FLUTED CATCH ELECTROLIER BODIES



S. P. Key

250 Watts—250 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
80	25	250	34	$17.50

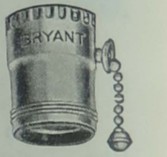
Keyless—660 Watts, 250 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
83	25	250	28	$14.00

Short Keyless—660 Watts, 250 Volts

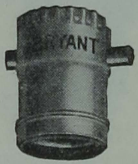
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
95	25	250	20	$12.50

S. P. Pull—250 Watts, 250 Volts



Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
85	25	250	35	$23.50

Can be equipped with lamp grip.



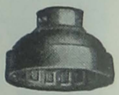
Push—250 Watts, 250 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
82	25	250	31	$17.50
Push—660 Watts, 250 Volts				
81	25	250	31	23.00

FLUTED CATCH ELECTROLIER CAPS

N. E. C. Standard

⅛ Inch Female Cap



Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std. Pkg.	Price Per 100
WA	25	250	11	$8.00

¼ Inch Female Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
WB	5	25	1¼	$20.00
⅜ Inch Female Cap				
WC	25	50	2½	12.00

⅛ Inch Male Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
WE	5	25	1	$15.00
⅜ Inch Male Cap				
WG	5	25	1	20.00

⅛ Inch Female Angle Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
WM	25	50	2½	$35.00

⅜ Inch Female Angle Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
WP	5	25	1½	$42.50

Pendent Cap—$\frac{13}{32}$ Inch Hole

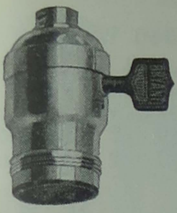
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
WT	25	50	1¼	$8.00
⅛-Inch Female Cap With Side Entrance Bushing				
WX	25	50	2	9.00

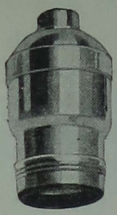
Standard finish is brush brass.

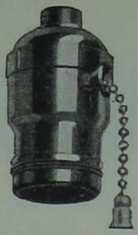
BRYANT BRASS SHELL LAMPHOLDERS

HIGH GRADE—FLUTED CATCH

With Covered Cap Fastenings


No. AA10


No. AA13


No. AA15

Key

Cat. No.	Style Cap	Car-ton	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
250 Watts, 250 Volts					
AA10	⅛-inch	25	250	46	$25.50
AT10	Pendent	25	250	41	25.50
AC10	⅜-inch	25	100	19	29.50
CX10	⅛-inch, Side Outlet	25	100	18	26.50
660 Watts, 250 Volts					
AA12	⅛-inch	25	250	52	64.00
AT12	Pendent	25	250	47	64.00
AC12	⅜-inch	25	100	21	64.00
CX12	⅛-inch, Side Outlet	25	100	20	61.00
Keyless					
660 Watts, 250 Volts					
AA13	⅛-inch	25	250	50	22.00
AT13	Pendent	25	250	44	22.00
AC13	⅜-inch	25	100	20	26.00
CX13	⅛-inch, Side Outlet	25	100	20	23.00
Pull					
250 Watts, 250 Volts					
AA15	⅛-inch	25	250	47	31.50
AT15	Pendent	25	250	42	31.50
AC15	⅜-inch	25	100	19	35.50
CX15	⅛-inch, Side Outlet	25	100	18	32.50
660 Watts, 250 Volts					
AA35	⅛-inch	25	250	52	35.50
AT35	Pendent	25	250	48	35.50
AC35	⅜-inch	25	100	21	39.50
CX35	⅛-inch, Side Outlet	25	100	20	36.50

COMPETITIVE GRADE—FLUTED CATCH

With Exposed Cap Fastening

No. HA15

Cat. No.	Style Cap	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
Key—250 Watts, 250 Volts					
HA10	⅛-inch	25	250	50	$14.50
HT10	Pendent	25	250	44	14.50
Keyless—660 Watts, 250 Volts					
HA13	⅛-inch	25	250	50	12.50
HT13	Pendent	25	250	44	12.50
Pull—250 Watts, 250 Volts					
HA15	⅛-inch	25	250	52	18.00
HT15	Pendent	25	250	48	18.00
Push—250 Watts, 250 Volts					
HA32	⅛-inch	25	250	48	15.30
HT32	Pendent	25	250	43	15.30
Push—660 Watts, 250 Volts					
HA34	⅛-inch	25	250	48	16.30
HT34	Pendent	25	250	43	16.30

ELECTROLIER—MEDIUM BASE

With Covered Cap Fastenings

With ⅛-Inch Cap

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
Key—250 Watts, 250 Volts				
WA80	25	250	45	$25.50
Keyless—660 Watts, 250 Volts				
WA83	25	250	40	22.00
Keyless—Short Shell—660 W., 250 V.				
WA95	25	250	30	20.50
Pull—250 Watts, 250 Volts				
WA85	25	250	44	31.50
Push—250 Watts, 250 Volts				
WA82	25	250	40	25.50
Push—660 Watts, 250 Volts				
WA81	25	250	40	31.00

No. WA81

BRYANT BRASS SHELL LAMPHOLDERS

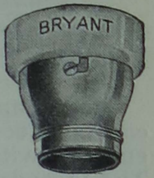
BAYONET CATCH—MEDIUM BASE

Key—250 Watts, 250 Volts

Cat. No.	Cap	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
9386	⅛	25	250	45	$55.50
50760	⅜	25	100	20	65.00
Keyless—660 Watts, 250 Volts					
9392	⅛	25	250	50	50.00
50768	⅜	25	100	22	60.50

PONY WALL LAMPHOLDER

With Base for Concealed Work



Keyless Socket

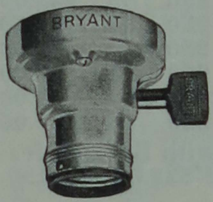
660 Watts, 250 Volts

Diameter of base, 2 inches; height, 2 inches. Supporting screw spacing, 1¼ inches.

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
50717	10	100	22	$40.50

WALL LAMPHOLDERS

With Covered Bases for Concealed Work



Key—250 Watts, 250 Volts

Cat. No.	Size Base	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
60018	2 5/16	10	100	35	$81.00

Height, 2¼ inches. Screw spacing, 1⅝ inches.

Keyless—660 Watts, 600 Volts

Cat. No.	Size Base	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
60019	2 5/16	10	100	35	76.50
60020	3 5/16	10	100	50	110.50

Height, 2¼ inches. Screw spacings, 60019, 1⅝ inches; 60020, 1⅝ and 2 inches.

REMOVABLE RING LAMPHOLDER

With Small Covered Base for Concealed Work

Keyless Socket

660 Watts, 250 Volts

Height, 1¾ inches; supporting screw spacing, 1¼ inches.

Cat. No.	Size Base	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
50746	2	10	100	20	$68.00

ELECTROLIER LAMPHOLDER—MEDIUM BASE

Keyless—660 Watts, 250 Volts

No. 66237

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
With ⅛-Inch Cap				
66237	50	250	45	$61.50
With ⅜-Inch Cap				
50766	10	100	17	69.00

PLUG-IN PULL LAMPHOLDER

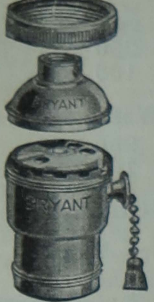
250 Watts, 250 Volts

Inserting one of these sockets in a key or keyless socket provides the convenience of control of a pull socket. No. 35024 is 3⅜ inches long over all. Brush brass finish.

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
35024	2	10	3	$74.50

BRYANT THREADED CATCH BODIES AND CAPS

N. E. C. Standard



No. TA4315 Showing Method of Fastening Shell to Cap

No. TA

No. TT

The connection between the socket body and cap is effected by means of a threaded ring that engages with a corresponding thread in the shell. The threaded ring is packed with the socket body. Each cap will fit all bodies.

SOCKET BODIES WITH RINGS

Without Caps—250 Volts

Cat. No.	Description	Watts	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
4310	Key, S.P.	250	25	250	39	$27.00
4312	Key, S.P., H.C.	660	25	250	48	43.50
4313	Keyless	660	25	250	45	22.50
4314	Push, H.C.	660	25	250	40	27.00
4317	Push	250	25	250	40	26.00
4315	Pull, S.P.	250	25	250	40	37.00

Above sockets can be supplied with Brylock feature at an addition to list price of **$32.00** per 100.

CAPS

Cat. No.	Size Cap	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
TA	⅛	25	250	11	$7.50
TB	¼	25	50	3	18.00
TC	⅜	25	100	5	11.00
TD	½	25	50	3	25.50
TJ	¼ to ⅜	25	100	7	19.50
TQ	⅜ to ½	25	100	7	19.50
TT	Pendent	25	250	6	7.50

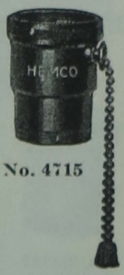
Caps TJ and TQ are supplied with cord grip.

BAKELITE SOCKET BODIES AND CAPS

No. LA

No. LG

No. 4714



No. 4715

Any of the caps listed may be used with any of the bodies. Carton, 10; standard package, 100.

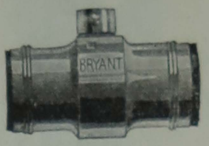
Cat. No.	Description	Rating Watts	Rating Volts	Pkg. Wt.	Price Per 100
LA	⅛-Inch Female Cap	......	......	4	$7.50
LC	⅜-Inch Female Cap	......	......	4¾	11.00
LG	Cord Grip Cap	......	......	5½	19.50
LT	Pendent Cap	......	......	2	7.50
4710	S.P. Key Body	250	250	16	27.00
4713	Keyless Body	660	250	19	22.50
4714	Push-Button Body	660	250	19	27.00
4717	Push-Button Body	250	250	19	29.00
4715	S.P. Pull Body	250	250	16	37.00

Standard chain is 6½ inches long.

BRYANT TWIN AND ANGLE SOCKETS

N.E.C. Standard

KEYLESS—BRASS SHELL—TWIN



Each Outlet 660 Watts

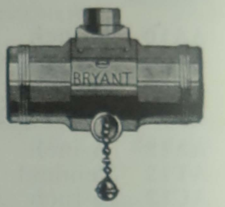
Length sockets, 2 11/16 inches.

Cat. No.	Cap	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
46750	⅛	2	10	2	$86.00
46751	⅜	2	10	2	86.00

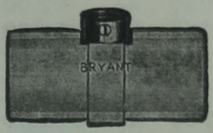
PULL—BRASS SHELL—TWIN

Combined Load, 250 Watts, 250 Volts

Cat. No.	Cap	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
Outlets Controlled Simultaneously					
4051	⅛	2	10	3	$127.50
4052	⅜	2	10	3	140.00
Outlets Controlled Separately Sequence—1, 1 & 2, 2, off					
4005	⅛	2	10	3	144.50



PORCELAIN—TWIN



Each Outlet 660 Watts

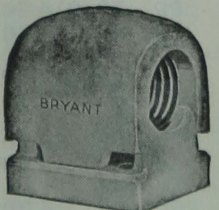
250 Volts

Cat. No.	Cap	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
76750	⅛	10	100	41	$51.00
76751	⅜	10	100	42	54.50

PORCELAIN—ANGLE

660 Watts, 250 Volts

Cat. No.	Side Bushing	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
7043	⅛	10	100	29	$22.00
7044	⅜	10	100	30	22.00



No. 4248

No. 4249

PORCELAIN KEYLESS DOUBLE OUTLET

For concealed, cleat or moulding work. Base size, 2¼ x 1¾ inches; height, 2⅝ inches; base to center of lamp, 1½ inches.

Mounting holes are staggered, centers are 1⅛ inches on width, and 1 inch on length.

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
4248	10	100	60	$61.50
Porcelain Sub Base				
4249	10	100	10	13.00

ADJUSTABLE ANGLE ADAPTER

For Reflector Type Lamps

660 Watts, 250 Volts

Provides a horizontal adjustment range of 340 degrees and vertical of 70 degrees. Thumb screw setting.

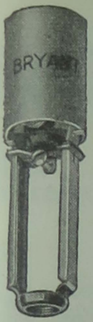
Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
4700	10	100	50	$100.00

BRYANT CANDLE SOCKETS

N. E. C. Standard

KEYLESS—660 Watts, 250 Volts

With Paper Jacket and Female Bushing



No. 4194

No. 4004

The bushing of this socket is threaded for ⅛-inch iron pipe, .405 inch outside diameter, 27 threads per inch. Outside diameter of paper jacket, 1 3/16 inches; length of body, 1⅞ inches.

Rigid, 2 13/16 Inches Long

Mfrs. No.	Style Base	Carton	Std. Pkg.	Wt. Pkg. Std. Pkg.	Price Per 100
4004	Med.	25	250	30	**$8.50**

Adjustable, 3⅞ to 5½ Inches Long

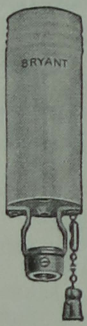
Mfrs. No.	Style Base	Carton	Std. Pkg.	Wt. Pkg. Std. Pkg.	Price Per 100
4194	Med.	25	250	31	**12.00**

PULL CANDLE SOCKETS—COMPOSITION

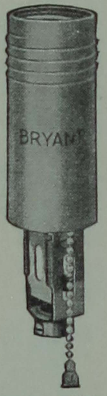
With Paper Jacket and ⅛-Inch Female Bushing

No. 4320 is non-adjustable, 3⅞ inches long. No. 4190 is adjustable 4½ to 5⅝ inches.

The standard chain is No. 3 size and extends 5 inches below the composition on the non-adjustable sockets and 6 inches below the composition on the adjustable socket. Standard finish of chain is brush brass, but polished or dull nickel finish will be furnished without extra charge.



No. 4230



No. 4190

Non-Adjustable Socket

Mfrs. No.	Style Base	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4230	Med.	10	100	15	**$28.50**

Adjustable Socket

Mfrs. No.	Style Base	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4190	Med.	10	100	19	**30.50**

INTERMEDIATE BASE CANDLE SOCKETS

Composition Candle Pull Socket

75 Watts, 125 Volts

With paper jacket and ⅛-inch female thread bushing. Outside diameter of sleeve is 29/32 inches; overall length 2⅝ inches. Standard length of chain, 5 inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9640	25	100	8	**$112.50**

COMPOSITION KEYLESS CANDLE SOCKET

75 Watts, 250 Volts

With ⅛-inch female thread bushing. Adjustable, 3½ to 5 inches long. Outside diameter of paper jacket is ⅞ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9652	25	100	14	**$22.00**

BRYANT INTERMEDIATE BASE SOCKETS

N. E. C. Standard

INTERMEDIATE BASE SOCKET CAPS

⅛-Inch Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
IA	25	100	2½	**$13.00**

Pendent Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
IT	25	100	2	**$13.00**

⅛-Inch Angle Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
IM	25	50	1¼	**$31.50**

INTERMEDIATE BASE SOCKET BODIES

Key Socket Body

75 Watts, 125 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4610	25	100	7	**$38.50**

Keyless Socket Body

75 Watts, 250 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4613	25	100	7	**$27.00**

Pull Socket Body

75 Watts, 125 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4615	25	100	7	**$62.50**

GREEN BAKELITE PENDENT SOCKET

75 Watts, 250 Volts

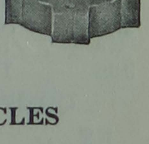
Weatherproof. Equipped with 6-inch leads of No. 18 stranded rubber-covered weatherproof wire. Longer leads, **$2.00** list additional per 100, each conductor.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9650	25	100	4¼	**$18.50**

PORCELAIN CLEAT RECEPTACLE

75 Watts, 250 Volts

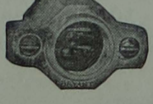
Diameter of base, 1½ inches; over lugs, 1⅞ inches; overall height, 1 7/16 inches; supporting screw spacing, 1½ inches.



Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9653	25	100	16	**$18.50**

PORCELAIN SIGN RECEPTACLES

75 Watts, 250 Volts



For metal signs. Designed to fit 1-inch holes. Depth of backs, 1 9/32 inches. Equipped with No. 8-32, ½-inch long, bronze supporting screws spaced 1⅜ inches.

Two Screw Mounting, Screw Terminals

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9663	25	100	13	**$18.50**

BRYANT INTERMEDIATE BASE SOCKETS

75 Watts, 250 Volts — N. E. C. Standard

PORCELAIN SIGN RECEPTACLE

For metal signs. Designed to fit 1 1/16-inch holes. Outside diameter of both screw ring and body is 1⅜ inches. Depth of back, 1 inch.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9690	25	100	13	$18.50

MEDIUM TO INTERMEDIATE BASE ADAPTER

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9691	25	100	4	$17.00

BRYANT CANDELABRA SOCKETS

75 Watts, 125 Volts—N. E. C. Standard

PULL CANDLE SOCKET

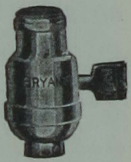
The bushing of this socket is threaded for ⅛ inch iron pipe. Standard chain is No. 3 size extending 5 inches below the bushing. Standard finish, brush brass.

The outside diameter is 29/32 inch. Length over all 2½ inches. Regularly supplied with paper insulating jacket which covers the mechanism and screw shell; outside diameter jacket 29/32 inch.

Mfrs. No.	Style	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
540	Cand.	25	50	3½	$112.50

KEY SOCKET

With Fluted Catch Shell Fastening



The standard finish is brush brass which will be furnished when no finish is specified.

Candelabra—⅛-Inch Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
434	25	100	9	$53.00

KEYLESS SOCKET

With Threaded Shell Fastening

Candelabra—⅛-Inch Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
321	25	100	6	$45.00

PULL SOCKET

With Wrinkle Style Shell Fastening

Standard length of chain is 4 inches. Can be furnished with extension chain guides at slight additional charge.

Candelabra—⅛-Inch Cap

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
386	10	50	4	$83.00

COMPOSITION DECORATIVE SOCKET

Made in green composition. Each socket fitted with 6 inches No. 18 green braid, stranded rubber-covered wire. For longer wires add **$2.00** list per 100 devices for each extra foot or fraction thereof on both conductors.

Candelabra, Pendent—Keyless

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
323	25	100	4	$26.50

No. 323 not N. E. C. Standard.

BRYANT CANDELABRA SOCKETS

75 Watts, 250 Volts—N. E. C. Standard

PORCELAIN KEYLESS SOCKETS

Male Thread Stud

Supporting studs are 5/16 inch outside diameter, 27 threads per inch. Outside diameter porcelain, 11/16 inch; length porcelain, 1⅛ inches; overall, 1⅜ inches.

Mfrs. No.	Style	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
328	Cand.	25	100	3¼	$32.00

Female Thread Bushing

Bushings are threaded for ⅛ inch iron pipe, .405 inch outside diameter, 27 threads per inch. Outside diameter porcelain, 11/16 inch; length porcelain, 1⅛ inch; overall, 1 25/32 inches.

Mfrs. No.	Style	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
347	Cand.	25	100	5	$25.50

BRYANT MINIATURE AND CANDELABRA RECEPTACLES

75 Watts, 125 Volts—N. E. C. Standard

PORCELAIN CLEAT RECEPTACLES

Outside diameter base, 1 13/32 inches; thickness of base, ½-inch. Holes for supporting screws spaced 1 1/16 inches on centers.

Mfrs. No.	Hght. In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
		Miniature			
366	1⅛	25	100	10	$21.50
		Candelabra			
367	1 9/32	25	100	11	21.50

Miniature

Outside diameter of base, 1 3/16 inches; thickness of base, 9/32 inch· height, ¾ inch. Holes for supporting screws spaced 15/16 inch on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
*9445	25	200	9	$21.50

Candelabra

Outside diameter of base 1 11/32 inches; thickness of base 5/16 inch; height ⅞ inch. Holes for supporting screws spaced 1 1/16 inches on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
*9446	25	200	13	$21.50

*Not N.E.C. Standard.

CLEAT RECEPTACLES

Porcelain Base—Oblong

Base is 1 9/16 x 1 inches; thickness of base, 17/32 inch; height, 1 5/16 inches. Holes for supporting screws spaced 1 7/32 x 19/32 inches on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
325	10	100	9	$17.00

BRYANT MINIATURE AND CANDELABRA RECEPTACLES

75 Watts, 125 Volts—N. E. C. Standard

CLEAT RECEPTACLE

Composition Base—Oblong

Base is 1 9/16 x 1 inches; thickness of base, 17/32 inch; height, 1 1/16 inches. Holes for supporting screws spaced 1 7/32 x 19/32 inches on centers.

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
*612	10	100	9	$38.50

*Not N.E.C. Standard.

PORCELAIN RECEPTACLES

For Metal Signs

Hole required for No. 387 receptacle is 21/32 inch in diameter; depth 13/16 inch; supporting screw spacing, 1 1/16 inches.

No. 388

Hole required for No. 388 receptacle is ¾ inch diameter; depth 1 inch; supporting screw spacing 1 3/16 inches. The wires clear the supporting surface by 13/16 inch.

Miniature Receptacle

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
387	10	100	8	$30.00
Candelabra Receptacle				
388	10	100	10	30.00

With Removable Ring for Metal Signs

The hole required for these receptacles is ¾ inch diameter. Diameter 1 3/16 inches. Depth of No. 389, ⅝ inch. Depth No. 390, ⅞ inch. Thickness of ring, ¼ inch.

No. 390

Miniature Receptacle

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
389	25	100	8	$34.00
Candelabra Receptacle				
390	25	100	9	31.00

For Wooden Signs

The hole required for this receptacle is 15/16 inch diameter. Thickness of back, ⅝ inch. Diameter of back 1⅜ inches. Length of neck ⅞ inch. Supporting screw spacing 1 5/32 inch.

Candelabra Receptacle

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
*25705	10	100	12	$40.50

*Not N.E.C. Standard.

BRYANT PREFOCUSING SOCKETS AND RECEPTACLES

N.E.C. Standard

FOR MEDIUM PREFOCUSING LAMPS

For Surface or Concealed Wiring

Black bakelite. Height overall, 1⅞ inches; mounting screw centers, 2 inches.

1000 Watts, 250 Volts

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
3740	10	100	21	$136.00

Pendent Type

Black lacquered porcelain. No. 3741 height overall, 2 5/16 inches; diameter, 1¾ inches. No. 3742 furnished with fibre washer in place of cap; height overall, 1⅞ inches; mounting screw centers, 15/16 inch; diameter, 1¾ inches.

1000 Watts, 250 Volts

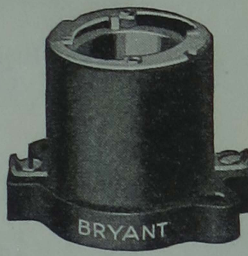
Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
3741	10	100	35	$101.00
3742	10	100	32	96.50

BRYANT PREFOCUSING SOCKETS AND RECEPTACLES

N.E.C. Standard

FOR MOGUL PREFOCUSING LAMPS

No. 3841



No. 3842

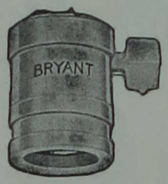
Prefocusing devices, for medium and mogul prefocusing lamps, are used with low voltage lamps, for instance, 12 volts for airplane installation and 32 volts for landing fields. Other lamps used are: 110-watt 115-volt T8½ bulb and 200-watt 115-volt T10 bulb coiled coil-filament projection lamps. These wattages represent the largest demand. Black lacquered porcelain.

2500 Watts, 250 Volts

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
3841	5	50	48	$376.50
3842	5	50	50	376.50

BRYANT INTERCHANGEABLE PORCELAIN LINE

SOCKET BODIES—N. E. C. Standard



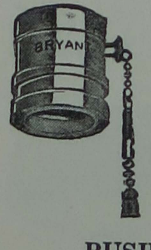
S. P. KEY—250 Watts, 250 Volts

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
70	10	100	26	$31.50

KEYLESS—660 Watts, 250 Volts

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
73	10	100	16	$28.00

S. P. PULL—250 Watts, 250 Volts



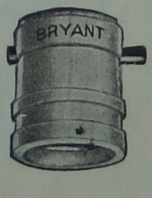
Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
75	10	100	30	$71.00

Standard finish of exposed metal is nickel. No. 513 insulating link inserted in chain.

PUSH BUTTON BODY

660 Watts, 250 Volts

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
71	10	100	31	$43.50
250 Watts, 250 Volts				
74	10	100	31	42.50



BRYANT INTERCHANGEABLE PORCELAIN LINE

N. E. C. Standard

FEMALE CAPS

⅛ Inch Brass

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
PA	10	100	14	$24.00

⅜ Inch Brass

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
PC	10	100	14	$29.00

½-Inch Brass Cap

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
PD	10	100	16	$40.50

Cord Grip Cap

For from ⅜-inch to ½-inch cord.

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
PQ	10	100	17	$30.00

⅜ Inch Brass Angle

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
PP	10	100	23	$90.50

½-Inch Brass Angle

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
RW	10	100	28	$95.50

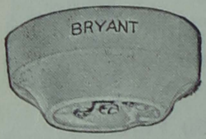
PENDENT CAPS

13/32 Inch Cord Hole

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
PT	10	100	10	$12.00

½ Inch Cord Hole

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
RT	10	100	13	$12.00



CONCEALED BASE

Outside diameter 2¾ inches; screw spacings, 1⅛ inches and 2 7/32 inches. Will fit type No. 500 Adaptibox.

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
PZ	10	100	38	$22.50

OUTLET BOX BASES

Outside diameter: No. RL, 3⅝ in.; screw spacing, 2¾ in.; No. RM screw spacings as follows: 2¾ in. for 3¼ in. boxes; 3½ in. for 4 in boxes; 3 9/32 in. for switch boxes.

Base for 3¼-Inch Boxes

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
RL	10	50	24	$36.00
Base for 3¼ and 4-Inch Boxes				
RM	5	50	37	48.00

BRYANT COMPOSITION SOCKETS

N.E.C. Standard

INTERCHANGEABLE COLD MOLDED BLACK COMPOSITION SOCKET CAPS

No. FA

Cap with ⅛-Inch Metal Bushing

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
FA	10	100	13	$24.00
Cap with ⅜-Inch Metal Bushing				
FC	10	100	15	29.00

Pendent Cap with Cord Grip ⅜-Inch to ½-Inch

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
FQ	10	100	16	$30.00

Pendent Cap

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
FT	10	100	10	$12.00

Wash nickel is the standard finish on the exposed metal parts.

INTERCHANGEABLE COLD MOLDED BLACK COMPOSITION SOCKET BODIES

KEY BODY

With Groove for Weatherproof Shade-Holder

Any cap may be assembled with this body to make a complete socket.

250 Watts, 250 Volts

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
3770	10	100	23	$31.50

KEYLESS SOCKET

With Groove for Weatherproof Shade-Holder

Any cap may be assembled with this body to make a complete socket.

660 Watts, 250 Volts

Mfrs. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
3773	10	100	14	$28.00

The list price of assembled socket will be the sum of the list prices of cap and body; Schedule B, standard package 100, carton 10.

ALUMINUM SHELL SOCKETS AND SHADEHOLDERS

No. 7971

No. 7975

For use with outdoor lighting fixtures. Non-rusting, weatherproof, dull finish.

Sockets have porcelain interiors and are arranged for the shadeholders. Three screws on shadeholders permit easy mounting of shades.

Cat. No.	Description	Pkg. Wt.	Price Per 100
7971	One-piece Aluminum Socket with ⅜-inch female nipple	16	$71.00
7972	Same, with ½-inch nipple	14	71.00
7975	2¼-inch Shadeholder	2	30.00
7976	3¼-inch Shadeholder	4	45.00

Standard package, 50; Carton, 10.

ALUMINUM HEAVY DUTY SOCKET

WITH SHADE HOLDER THREADS

600 Watts, 600 Volts

The shells are threaded on the end to receive a special shade holder No. 3700. Fitted with lance screw shell which prevents loosening of lamps from vibration. Diameter body, $1\frac{21}{32}$ inches; length, $2\frac{21}{32}$ inches.

Cat. No.	Cap	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3707	½-In.	10	50	21	**$71.00**

BRYANT LUMILINE LAMPHOLDERS

660 Watts, 250 Volts

Mounting hole spacings are standard 1⅛ inches for flush and 1 inch for surface installations.

END CAPS

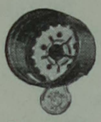
Shallow End Caps

No. 3890

Cat. No.	Type	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3890	Black	50	200	2	**$9.00**
3890-W	White	50	200	2	**10.00**

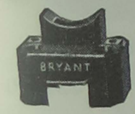
Deep End Caps

Cat. No.	Type	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3889	Black	50	200	5	**$11.00**
3889-W	White	50	200	5	**12.00**



No. 3889

BASES, FLUSH OR SURFACE MOUNTING



No. 3891

Single Base

Cat. No	Type	Std. Pkg.	Pkg. Wt.	Price Per 100
3891	Black	200	7	**$17.00**
3891-W	White	200	7	**19.00**

Carton, 50.

Twin Base

Cat. No	Type	Std. Pkg.	Pkg. Wt.	Price Per 100
3892	Black	200	13	**$26.00**
3892-W	White	200	13	**28.00**

Carton, 50.

No. 3892

No. 2996

BASES, SURFACE MOUNTING

Cat. No	Type	Std. Pkg.	Pkg. Wt.	Price Per 100
2996	Black	200	7¼	**$17.00**
2996-W	White	200	7¼	**19.00**

Carton, 50.

BASES, FLUSH MOUNTING

Cat. No	Type	Std. Pkg.	Pkg. Wt.	Price Per 100
2993	Black	200	5½	**$17.00**
2993-W	White	200	5½	**19.00**

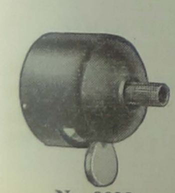
Carton, 50.

No. 2993

LUMILINE LAMPHOLDER WITH SWITCH

With Deep Collar

660 Watts, 250 Volts



No. 3893

Provides individual control of bracket fixtures using Lumiline lamps. Equipped with smooth action rotary switch.

Cat. No.	Color	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3893	Black	50	200	5	**$22.00**
3893-W	White	50	200	5	**23.00**

BRYANT FLUORESCENT LAMPHOLDERS AND STARTERS

STRAIGHT PUSH CONTACTING

Flush or Surface Mounting

No. 4302

For use with 1-inch and 1½-inch Fluorescent lamps.

660 Watts, 250 Volts

Cat. No.	Style	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4302	Black	10	100	6	**$20.00**
4302-W	White	10	100	6	**22.00**

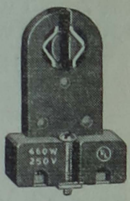
TWIST TURN CONTACTING

Flush or Surface Mounting

For use with 1-inch and 1½-inch Fluorescent lamps.

660 Watts, 250 Volts

Cat. No.	Style	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4300	Black	10	100	6	**$20.00**
4300-W	White	10	100	6	**22.00**



No. 4300

TWIST TURN CONTACTING

Flush Mounting for Narrow Channel Wiring

No. 4301

For use only with 1-inch Fluorescent lamps.

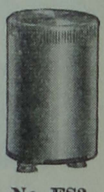
660 Watts, 250 Volts

Cat. No.	Style	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4301	Black	10	100	6	**$20.00**
4301-W	White	10	100	6	**22.00**

LAMP STARTER

The starter unit consists of an aluminum container with contacts which fit a bayonet connection in the starter socket. The unit contains a glow switch and a condenser to eliminate radio interference. It may be replaced as readily as the lamp itself.

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
For 15 Watts, 18-inch Lamps and 20 Watts, 24-inch Lamps				
FS2	10	100	4	**$45.00**
For 30 Watts, 36-inch Lamps and 40 Watts, 48-inch Lamps				
FS4	10	100	4	**45.00**



No. FS2

BLACK BAKELITE STARTER SOCKETS

No. 4306

For Attaching to Lampholders

660 Watts, 250 Volts

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4306	10	100	6	**$16.00**

Separate or Remote Mounting

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4309	10	100	4	**$16.00**
Spacer Sleeves for 4309				
4305	100	1000	5	**1.00**

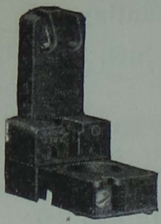
No. 4309

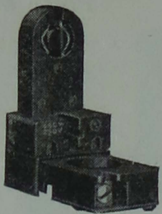
No. 4305

BRYANT FLUORESCENT LAMPHOLDERS AND STARTERS

LAMPHOLDERS WITH STARTER SOCKET

660 Watts, 250 Volts


No. 4308

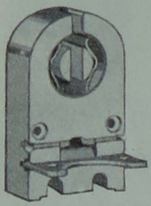

No. 4307

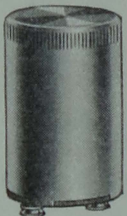
Cat. No.	Contacting	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4308	Straight Push, Black	10	100	10	$36.00
4308W	Straight Push, White	10	100	10	38.00
4307	Twist Turn, Black....	10	100	10	36.00
4307W	Twist Turn, White ..	10	100	10	38.00

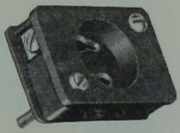
MOGUL LAMPHOLDERS AND STARTER

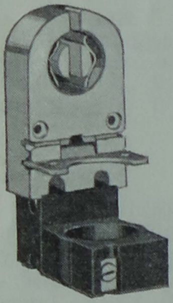
For 60-Inch T-17 100-Watt Lamps

660 Watts, 250 Volts


No. 4350-W


No. FS-6


No. 4359


No. 4357-W

Mogul Lampholders

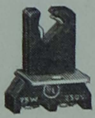
Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4350-W	10	50	6	$42.00
4357-W	10	50	10	72.00
Starter For T-17 100-Watt Lamps				
FS-6	10	50	3	125.00
Starter Socket For Separate or Remote Mounting				
4359	10	50	4	30.00

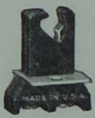
Nos. 4350-W and 4357-W are furnished white; No. 4359, black.

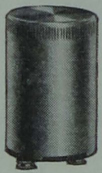
MIDGET LAMPHOLDERS AND STARTER

For 4-Watt, 6-Inch and 6-Watt, 9-Inch Lamps

75 Watts, 250 Volts


No. 4318


No. 4319


No. FS-5

Right Hand Lampholder

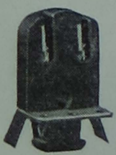
Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4318	Black	10	100	2	$36.00
Left Hand Lampholder					
4319	Black	10	100	2	36.00
Starter for 4- and 6-Watt Lamps					
FS-5	Starter	10	100	3	55.00

Starter sockets for No. FS-5 starters are built into the ballast unit for these small lamps.

NEW FIXTURE LAMPHOLDER

660 Watts, 250 Volts

For 1-Inch Lamps

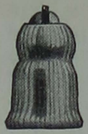

No. 4303

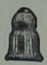
Straight push contacting. For narrow channel wiring.

Cat. No.	Color	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4303	Black	10	100	6	$20.00
4303-W	White	10	100	6	22.00

BRYANT SOCKET ACCESSORIES

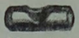
TASSEL PENDANTS FOR PULL CHAIN DEVICES

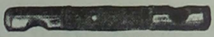

No. 692


No. 693

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
For No. 6 Chain				
692	50	250	1	$9.50
For No. 3 Chain				
693	10	50	⅛	9.50

INSULATING AND SPLICING LINKS


No. 810


No. 513

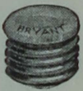
In those pull devices having a combination of chain and cord, No. 810 splicing link is used to join the two. Standard finish, brush brass, which will be supplied when no other finish is specified. All other finishes are special.

Insulating Link for No. 3 or No. 6 Chain

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
513	20	100	½	$13.00
Splicing Link for No. 6 Chain and Small Cord				
810	40	200	½	4.50
Splicing Link for No. 3 Chain				
811	40	200	½	4.50

SOCKET REDUCERS

N. E. C. Standard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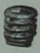

No. 391

Mogul to Medium

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
421	10	100	19	$32.00
Medium to Intermediate				
9691	25	100	4	17.00
Medium to Candelabra				
392	25	100	6	15.00
Candelabra to Miniature				
391	20	100	1	15.00

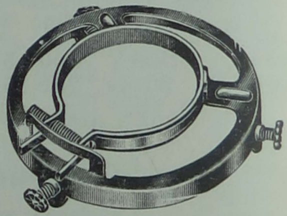
COMPOSITION SOCKET BUSHINGS

Mfrs. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
* 990	⅛	100	1000	3	$1.50
*1490	⅜	100	1000	7	3.00

*Not N.E.C. Standard.

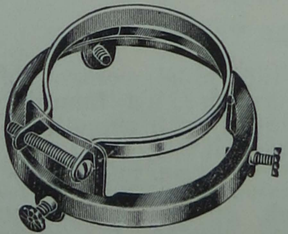
P. & A. SHADEHOLDERS

SHADEHOLDERS FOR BRASS SOCKETS



Brush brass finish.

Mfrs. No.	Size In.	Std. Pkg.	Price Per Gross
1264	2¼	12	$12.75
1265	3¼	12	27.75



SHADEHOLDERS FOR WEATHERPROOF SOCKETS

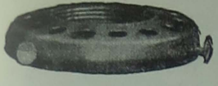
Brush brass finish.

Mfrs. No.	Size In.	Std. Pkg.	Price Per Gross
2738	2¼	12	$18.75
2787	3¼	12	31.50

BRYANT SHADE HOLDERS

UNO SHADE HOLDERS

N. E. C. Standard



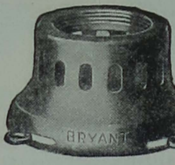
VENTILATED

With Screws to Hold Shade

Mfrs. No.	Size In.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100	
					Finished	Unfin.
501	2¼	50	500	21	$10.00	*$9.50
505	3¼	25	250	31	28.00	27.50
511	4	10	100	18	40.00	39.00

VENTILATED

With Spring Grip to Hold Shade

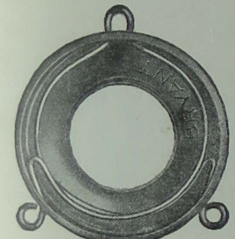


No. 504 only is Form H type like illustration. No. 502 is flat type like No. 533, but ventilated.

Mfrs. No.	Size In.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100	
					Finished	Unfin.
502	2¼	50	250	13	$16.00	$15.50
504	2¼	25	100	11	30.00	29.50

SOLID

With Spring Grip to Hold Shade

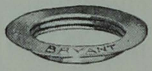


Carton 50; std. pkg., 250.

Cat. No.	Size In.	Pkg. Wt.	Price Per 100	
			Finished	Unfin.
533	2¼	14	$18.00	$17.00

Wire Springs only for Nos. 502, 503 and 533, No. 5026 $5.00 per 100; carton, 25; standard package, 100.

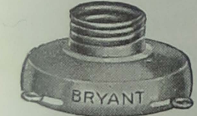
UNO FIXTURE RING



This ring is provided with the Uno thread and is used for attaching ornamental pieces to sockets.

Mfrs. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
549	50	200	4	$9.50

EMERGENCY SHADE HOLDERS



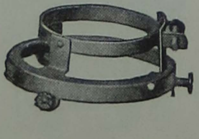
Designed specially for use with porcelain lamp holders and receptacles on not over 250 volts. Method of attachment is by means of screw shell, thoroughly insulated from holder, which threads onto outside of screw shell of lamp socket without interfering with the use of lamp. Made with spring grip only.

Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
443	2¼	25	100	7	$33.00

WEATHERPROOF SHADE-HOLDERS

These shade-holders may be used with any medium base porcelain or composition socket or receptacle which is provided with shade-holder grooves.

No. 3700 fits aluminum sockets No. 3707.



Clamp Shade-Holders

Cat. No.	Size In.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
*628	2¼	25	250	15	$17.00
*629	3¼	10	100	10	24.50
Aluminum, 3-Screw					
3700	2¼	10	50	3½	32.00

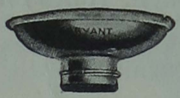
*Not N.E.C. Standard.

BRYANT SURFACE AND OUTLET BOX RECEPTACLES

KEYLESS BRASS SHELL RECEPTACLES

660 Watts, 250 Volts

With binding screws. Diameter of base: No. 4102, 3⅝ inches; No. 4100, $4\frac{21}{32}$ inches. Height, $1\frac{17}{32}$ inches. Screw spacings, 2¾ and 3½ inches.


No. 4102

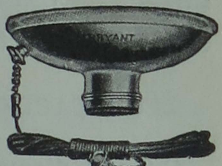
For 3¼-Inch Outlet Boxes

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
4102	2	50	29	$74.50
For 3¼ or 4-Inch Outlet Boxes				
4100	2	50	46	90.50

BRASS SHELL PULL RECEPTACLE

250 Watts 250 Volts

For 3¼ or 4-Inch Outlet Boxes

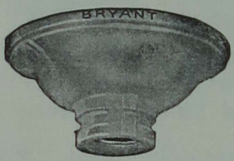


With binding screws. Diameter base, $4\frac{21}{32}$ inches; height, 2 inches. Screw spacings, 2¾ and 3½ inches.

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
4104	2	50	56	$196.50

KEYLESS PORCELAIN RECEPTACLES

660 Watts, 250 Volts



For 3¼ and 4-Inch Outlet and Switch Boxes

Diameter base, 4⅝ inches; screw spacings, 2¾ to 3½ inches.

With shade holder groove.

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
4273	2	50	59	$78.00

PULL PORCELAIN RECEPTACLES

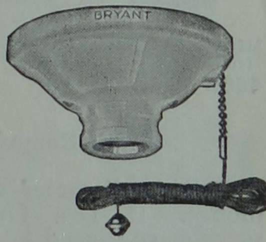
250 Watts, 250 Volts

For 3¼ or 4-Inch Outlet and Switch Boxes

Diameter base, 4⅝ inches; screw spacings, 2¾ to 3½ inches.

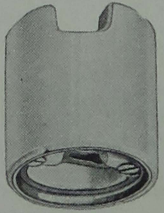
With shade holder groove.

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
With 6½-Inch Chain				
4275	2	50	58	$132.00
With 6½-Inch Chain and 4-Foot Cord				
4278	2	50	58	140.00

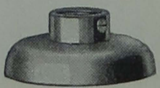

No. 4278

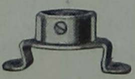
BRYANT BI-POST LAMPHOLDER

1500 Watts, 250 Volts


No. 3843

The medium bi-post lampholders have been designed for the new bi-post lamps. The lamp prongs are inserted through the retaining plates and when twisted engage the contact clips firmly.


No. 4573


No. 4583

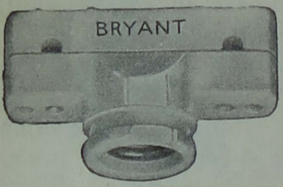
Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
3843	Porce. Body	5	50	30	$80.00
Caps					
4573	⅜-inch Br.	5	50	5	6.50
Yoke					
4583	⅜-inch Br.	5	50	3	6.00

BRYANT PORCELAIN RECEPTACLES

N. E. C. Standard

660 Watts, 250 Volts

CLEAT RECEPTACLES



No. 58300

Length, 3$\frac{15}{16}$ inches; width, 1 inch. Holes for supporting screws spaced $\frac{7}{16}$ x $\frac{31}{32}$ inches. Can be furnished with lamp grip.

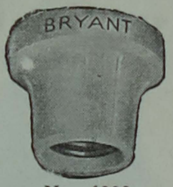
Cleat Receptacle

With Shade-Holder Groove

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
58300	5	100	55	**$48.00**

RECEPTACLES FOR CONCEALED WIRING

Outside diameter base, 2⅜ inches. Holes for supporting screws are spaced 1⅝ inches on centers.



No. 4000

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4000	10	100	37	**$41.50**
With Shade-Holder Groove				
4001	10	100	36	**50.00**

For Uno and Other Standard Shade Holders

Outside diameter base, 2$\frac{5}{16}$ inches. Holes for supporting screws are spaced 1⅝ inches on centers. Brush brass shell will be furnished when no finish is specified. For special finishes see another page.

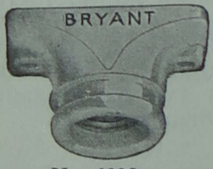
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4002	10	100	30	**$58.50**

With Removable Porcelain Ring

Outside diameter of base is 2$\frac{11}{32}$ inches. Holes for supporting screws are spaced 1$\frac{3}{16}$ to 1¼ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
50744	10	100	35	**$50.00**

Receptacles for Wood Molding



No. 4026

Length, 2⅞ inches; width, 1$\frac{11}{16}$ inches. Holes for supporting screws spaced 2$\frac{9}{32}$ inches on centers. May be used on ½ and ¾ inch pipe taplets and V.V. Fittings.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4026	10	100	31	**$58.50**

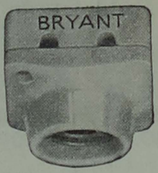
This receptacle can be attached to ½-inch and ¾-inch Pipe Taplets and also type 1, 3, 4 and T, ½-inch, ¾-inch and 1-inch V. V. Fittings by means of 43SS, 44SS and 45SS V. V. snap switch covers.

BRYANT PORCELAIN RECEPTACLES

N. E. C. Standard

CLEAT RECEPTACLES

660 Watts—250 Volts



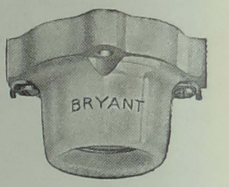
Receptacle for Wood Molding

Length is 2$\frac{5}{16}$ inches; width, 2⅛ inches; height, 1$\frac{11}{16}$ inches. Holes for supporting screws spaced 1$\frac{13}{16}$ inches on centers. Emergency shade holders may be attached to this device.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
42453	10	100	47	**$41.50**

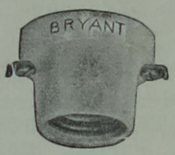
CLEAT RECEPTACLES

Diameter main base, 2$\frac{11}{32}$ inches; diameter over lugs, 2⅞ inches; height, 1$\frac{21}{32}$ inches. Holes for supporting screws spaced 2$\frac{5}{16}$ inches on centers.



Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
9402	10	100	38	**$29.00**

Cleat Receptacle



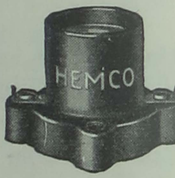
No. 9171 not N.E.C. Standard. Base, 1$\frac{15}{16}$ in.; height 1½ in. Supported by one screw.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9171*	10	100	25	**$14.00**

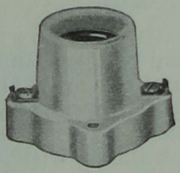
*Not N.E.C.S.

Bakelite Pony Type

Diameter main base, 1⅞ inches; diameter over lugs, 2$\frac{7}{16}$ inches; height, 1$\frac{23}{32}$ inches. Holes for supporting screws spaced 1$\frac{31}{32}$ inches on centers.



Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H715	10	100	11	**$9.00**



PORCELAIN—COMPETITIVE GRADE

With Screw Terminals

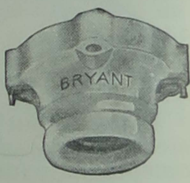
660 Watts, 250 Volts

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
50715	10	100	25	**$9.00**

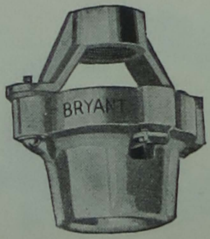
Screw spacing, 1$\frac{31}{32}$ inches.

For Weatherproof Shade Holders

Diameter of main base 2$\frac{11}{32}$ inches; diameter over lugs 2⅞ inches; height, 1$\frac{21}{32}$ inches. Supporting screw spacing 2$\frac{5}{16}$ inches.



Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4013	10	100	35	**$37.50**



FOR STREET HOODS

660 Watts, 250 Volts

With ½-inch yoke. Length overall, 3 inches.

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4233	10	100	56	**$40.50**

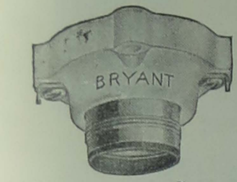
BRYANT PORCELAIN RECEPTACLES

N. E. C. Standard

CLEAT RECEPTACLES

660 Watts, 250 Volts

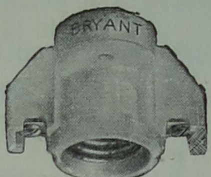
Brass Shell for Uno and Other Standard Shade Holders



Diameter main base, 2 11/32 inches; diameter over lugs, 2⅞ inches; height, 1⅝ inches. Holes for supporting screws spaced 2 5/16 inches on centers. Brush brass shell will be supplied when no finish is specified.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9403	10	100	32	$45.00

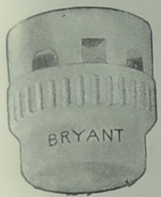
For Damp Places



Diameter over lugs, 2 21/32 inches; height, 1 19/32 inches. Raises wires 1 inch from surface. Holes for supporting screws spaced 2 inches on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
59275	10	100	36	$38.50

Combination Base for Cleat or Concealed Wiring



Diameter base, 2⅛ inches; height, 1⅞ inches. Holes for supporting screws are slotted to provide 1⅜ inches to 1⅝ inches on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
4229	10	100	32	$23.50

RECEPTACLES FOR OUTLET BOXES

Two-Piece

The hole required for this receptacle is 1 19/32 inches in diameter; outside diameter of face, 2¼ inches; thickness, 11/32 inch. Depth from back of flange, 1 25/32 inches; flange, 2¼ inches. Supporting screw spacing 1⅞ inches.

Emergency shade holders may be attached. Can be equipped with lamp grip.

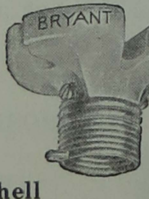
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9514	10	100	32	$47.00

OUTLET BOX RECEPTACLE

Base is 2x1⅜ inches; height, 1½ inches. Holes for supporting screws are spaced 1½ inches on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
9397*	10	100	14	$26.50

OUTLET BOX RECEPTACLE



Outside diameter of base is 2⅝ inches. Holes for supporting screws spaced 2 to 2 3/16 inches on centers.

Emergency shade holders may be attached to No. 4149 Receptacle.

With Marine Screw Shell

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
22287*	10	100	41	$64.00

With Regular Shell

Height 1 15/16 inches. Diameter 2⅝ inches. Screw spacings 2 to 2 3/16 inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4149	10	100	36	38.50

*Not N.E.C. Standard.

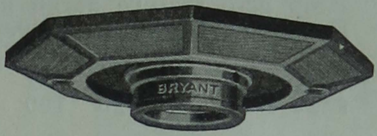
BRYANT PORCELAIN RECEPTACLES

N. E. C. Standard

660 Watts, 250 Volts

BROWN BAKELITE COVER AND RECEPTACLE

For 3¼ and 4-Inch Outlet Box

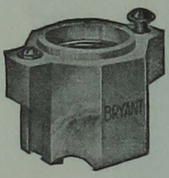


No. 4400

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4400	10	100	40	$58.50

RECEPTACLES FOR METAL SIGNS

660 Watts, 600 Volts



Hole required, 1⅜ inches in diameter; diameter receptacle, 1⅝ inches; depth, 1½ inches. Holes for supporting screws spaced 1 13/16 inches on centers.

With Grooved Back

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4063	10	100	27	$16.00

With Unthreaded Shell for Lamp Testing

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4063-T*	10	100	27	18.00

*Not N.E.C. Standard.

PONY SIGN RECEPTACLE

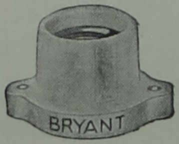
660 Watts, 250 Volts

Diameter of hole required, 1⅜ inches; diameter receptacle, 1½ inches; depth, 1⅜ inches. Holes for supporting screws spaced 1 13/16 inches on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
40488	10	100	20	$28.00

RECEPTACLE FOR WOODEN SIGNS

660 Watts, 250 Volts



The hole required for this receptacle is 1 9/16 inches in diameter. Supporting screws are spaced 1 13/16 to 1⅞ inches. Diameter of back 1⅞ inches; thickness of back 9/16 inch; length of neck 1 1/32 inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
1700*	10	100	23	$26.50

*Not N.E.C. Standard.

BRYANT PORCELAIN RECEPTACLES

N. E. C. Standard

PORCELAIN BODY AND DIE-CAST CAPS

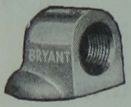
660 Watts, 600 Volts

No. 9429

Diameter 1½ inches; length of body 1 11/16 inches; overall length 2¼ inches. These devices can be supplied with lamp grip feature at an addition to list price of **$7.50** per 100.

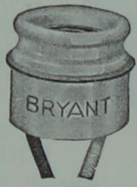
Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
9429	Body..........	10	100	17	**$13.50**
	Threaded Caps				
9455	⅛-inch......	10	100	15	**6.50**
9456	¼-inch......	10	100	14	**6.50**
9457	⅜-inch......	10	100	13	**6.50**
9458	½-inch......	10	100	11	**10.00**
	Angle Caps				
9460	⅜-inch......	10	100	16	**15.50**
9461	½-inch......	10	100	14	**15.50**

No. 9457


No. 9460

RECEPTACLES WITH DEEP SCREW RING

No. 4133



No. 4135

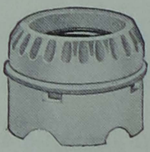
With deep, ⅝-inch, screw ring having groove for weatherproof shade-holders Nos. 628 and 629 and recess for Emergency shade-holders No. 443 only when used on not over 250 volts.

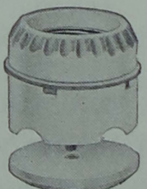
Mfrs. No.	Separation In.	Depth of Back In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
		660 Watts, 250 Volts With Binding Screws				
4133	⅝	13/16	10	100	20	**$22.50**
		660 Watts, 600 Volts With 6-Inch Wires†				
4135	27/32	27/32	10	100	26	**28.50**

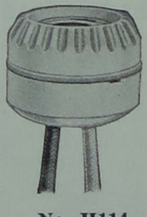
The hole required for each of the receptacles listed above is 1½ inches in diameter. Diameter of receptacles is 1¾ inches; diameter of rings 1¾ inches.

SHALLOW RECEPTACLES WITH ⅝-INCH RING

660 Watts, 250 Volts


No. H100


No. H101

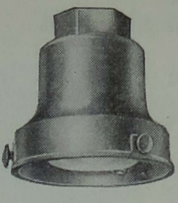

No. H114

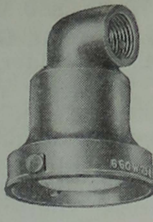
Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
	With Binding Screws				
H100	With 5 lug slots	25	250	55	**$ 9.00**
	With Covered Binding Screws				
H101	With 5 lug slots	25	250	69	**15.00**
	With 9-Inch No. 14 Stranded R.C. Wires				
H114	With one lug slot....	25	250	75	**16.00**
	With 9-Inch No. 18 Code Fixture Wire				
H118	With one lug slot....	25	250	68	**9.00**

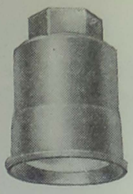
BRYANT WEATHERPROOF FIXTURES

DIE CAST HOOD TYPE

660 Watts, 250 Volts


No. 3996


No. 3997


No. 3998

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
	With ½-Inch Hexagonal Nipple				
3996	For 2¼-inch Shade	10	100	55	**$70.00**
	With ½-Inch 90° Angle Nipple				
3997	For 2¼-inch Shade	10	100	65	**80.00**
	With ½-Inch Hexagonal Nipple				
3998	No Shadeholder......	10	100	50	**56.00**

BRYANT WEATHERPROOF SOCKETS

N. E. C. Standard

BAKELITE LAMPHOLDER

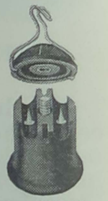
No. H309

With 6 inches No. 14 stranded rubber covered wires. With shadeholder groove.

660 Watts, 250 Volts

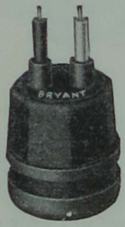
Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H309	Black	10	100	13	**$10.50**

BAKELITE—PIN TYPE LAMPHOLDERS


No. 54644

Cat. No.	Wire Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
	Medium Base Lampholder 660 Watts, 250 Volts				
5465	10 or 12	10	100	13	**$20.00**
	Intermediate Base Lampholder 75 Watts, 250 Volts				
54644	16 or 18	10	100	4	**10.00**
54645	14	10	100	4	**16.00**

SOFT RUBBER SOCKET



Provided with groove for weatherproof shade holder. With 6 inches No. 14 stranded wires; live rubber insulation on leads. Maximum diameter, 1⅝ inches; length of body 1 29/32 inches.

Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H311	10	100	20	**$22.00**

DECORATIVE STREAMER SOCKET

660 Watts, 250 Volts

High heat composition. Has solder lugs for attaching to steamers, and is so designed that it may be waxed after soldering, making it weatherproof.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4041	10	250	48	**$37.50**

COMPOSITION BRACKET SOCKET

660 Watts, 250 Volts

With grooves for Weatherproof shade holder. Maximum diameter, 1⅝ inches. Fitted with 6 inches No. 18 A.W.G. solid rubber-covered fixture wire.

Wires Inside of Pipe

Mfrs. No.	Size In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
43312	⅜	10	100	25	**$90.00**

BRYANT WEATHERPROOF SOCKETS

660 Watts, 600 Volts — N. E. C. Standard

PORCELAIN SOCKET

Main diameter, 1½ inches; flange diameter, 1⅝ inches; length porcelain, $1\frac{15}{16}$ inches. Can be furnished with lamp grip. Emergency shade holders may be attached when used on not over 250 volts.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
399†	10	100	27	**$15.00**

PORCELAIN SOCKET

Main diameter, 1½ inches; flange diameter 1⅝ inches; length porcelain $2\frac{1}{32}$ inches. Can be furnished with lamp grip. Emergency shade holders may be attached when used on not over 250 volts.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9366†	10	100	25	**$21.50**

BRAGDON SOCKET

Extension skirt carries the drip away from lamp and socket. Main diameter 1⅝ inches; diameter of skirt, $2\frac{11}{16}$ inches; length, $2\frac{29}{32}$ inches.

Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
50997†	10	100	52	**$82.50**

COMPOSITION SOCKET

Provided with groove for Weatherproof shade holder. Main diameter tapers from $1\frac{7}{16}$ inches to $1\frac{9}{16}$ inches; flange diameter, 1⅝ inches; length of composition, $2\frac{3}{16}$ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
60666†	10	100	25	**$20.50**

COMPOSITION—PONY SIZE

With groove for Weatherproof shade holder. Main diameter, $1\frac{9}{16}$ inches; flange diameter 1⅝ inches; length 2 inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
43310†	10	100	21	**$19.50**

BROWN BAKELITE SOCKET

Pony Size—Shade Holder Groove

Main diameter 1½ inches; flange diameter, 1⅝ inches. Length of body, $1\frac{13}{32}$ inches.

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H310†	10	100	13	**$13.50**

BAKELITE—PIN TYPE SOCKET

For decorative, streamer and outdoor fixture work. Terminals are pointed and pierce the wire insulation when the cap is screwed on.

Maximum diameter, 1⅝ inches; length, $2\frac{1}{16}$ inches.

Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
5464	10	100	13	**$20.00**

†Wire lead devices are fitted with 6-inch leads of No. 14 stranded rubber covered wire. For longer wires add **$4.50** per 100 devices for each extra foot on each conductor.

BRYANT PORCELAIN RECEPTACLES

N.E.C. Standard

OUTLET BOX RECEPTACLES

660 Watts, 250 Volts

For 3¼-Inch and 4-Inch Outlet and Switch Boxes

Cat. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H227	For 3¼-Inch Box	5	100	62	**$19.00**
H228	For 4 -Inch Box	5	50	45	**24.00**

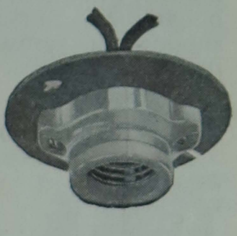
WITH CADMIUM PLATED COVERS

For 3¼ and 4-Inch Outlet Boxes

Screw Terminals

660 Watts, 250 Volts

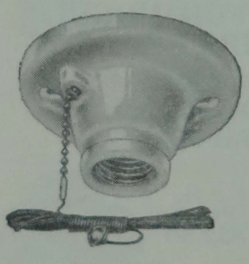
Cat. No.	Box Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H73	3¼	10	100	50	**$15.00**
H74	4	10	100	68	**17.00**
6-Inch No. 14 Stranded R.C. Wires **660 Watts, 600 Volts**					
H83	3¼	10	100	53	**18.00**
H84	4	10	100	71	**19.00**



PORCELAIN PULL LAMPHOLDERS

250 Watts, 250 Volts

LARGE DIAMETER TYPE



No. H268

Cat. No.	Box Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
With 6-Inch Chain					
H265	3¼	10	50	40	**$30.00**
H285	4	10	50	55	**42.50**
With Chain and Insulator					
H267	3¼	10	50	40	**32.00**
H287	4	10	50	60	**47.00**
With Chain and Cord					
H268	3¼	10	50	40	**24.00**
H288	4	10	50	60	**34.20**

REMOVABLE INTERIOR TYPE

Cat. No.	Box Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
With 6-Inch Chain					
H165	3¼	10	50	30	**$30.00**
H185	4	10	50	40	**42.50**
With Chain and Insulator					
H167	3¼	10	50	30	**32.00**
H187	4	10	50	40	**47.00**
With Chain and Cord					
H168	3¼	10	50	30	**24.00**
H188	4	10	50	40	**34.20**

No. H167

WITH CONVENIENCE OUTLET

No. H135

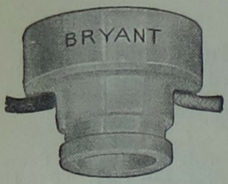
Cat. No.	Box Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
With 6-Inch Chain					
H135	3¼	10	50	40	**$41.00**
H145	4	10	50	60	**53.50**
With Chain and Insulator					
H137	3¼	10	50	40	**43.00**
H147	4	10	50	60	**58.00**
With Chain and Cord					
H138	3¼	10	50	40	**35.00**
H148	4	10	50	60	**46.00**

BRYANT WEATHERPROOF RECEPTACLES

N. E. C. Standard

660 Watt, 600 Volts

WITH SIDE WIRES

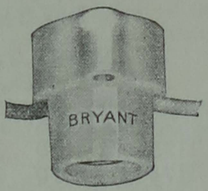


With groove for weatherproof shade holder.

Outside diameter base, 2 11/16 inches; thickness of base, 1 inch; height, 2⅛ inches. Holes for supporting screws spaced 2 3/16 inches on centers.

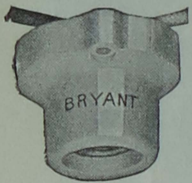
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9407†	10	100	70	**$38.50**

PONY—WITH SIDE WIRES



Outside diameter base, 1 31/32 inches; diameter over lugs, 2 17/32 inches; thickness of base, 1 inch; height, 2⅛ inches. Holes for supporting screws spaced 1 15/16 inches on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
44912†	10	100	41	**$38.50**



Outside diameter base, 2⅜ inches; diameter over lugs is 2⅞ inches; height, 1 13/16 inches. Holes for supporting screws are spaced 2⅜ inches on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9411†	10	100	46	**$38.50**

BRYANT SOCKETS FOR MOGUL BASE LAMPS

N. E. C. Standard

1500 Watts, 600 Volts

ALUMINUM CAPS

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
	⅜-Inch Female			
SA	10	50	3½	**$32.50**
	½-Inch Female			
SB	10	50	4	**32.50**

PORCELAIN KEYLESS SOCKET BODIES

With Binding Screws

Diameter, 2 3/32 inches; length, 2½ inches; screw spacings, 1 13/32 inches. Can be equipped with lamp grip at an addition to list of **$7.50** per 100.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4123	5	50	28	**$47.00**

With 15-Inch Leads

Diameter 2 3/32 inches; length 2½ inches; screw spacing 1 13/32 inches. Can be supplied with lamp grip feature at an addition to list price of **$7.50** per 100.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4081	5	50	33	**$75.50**

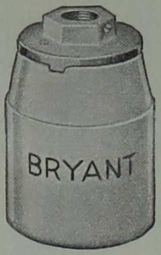
†Regularly furnished with 6-inch wired leads. Longer wire leads can be furnished on special order at $4.50 per 100 devices for each extra foot on each conductor.

BRYANT SOCKETS FOR MOGUL BASE LAMPS

N. E. C. Standard

MOGUL PORCELAIN KEYLESS SOCKET

1500 Watts, 600 Volts



Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
	With ⅜-Inch Cast Cap			
4291	10	50	30	**$47.00**
	With ½-Inch Cast Cap			
4292	10	50	31	**50.50**
	Body Only			
4290	10	50	30	**45.00**

Diameter, 2 3/32 inches; length, 3 1/16 inches; length body only, 2½ inches.

MOGUL PORCELAIN KEYLESS SOCKETS

1500 Watts, 250 Volts

No. 4559

No. 4560

Main diameter 2 3/16 inches; length with cap or yoke, 3⅜ inches; length body only, 2 9/16 inches. Body mounting screw centers, 1 7/16 inches.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4559	With ⅜-in. Brass Cap..	5	50	35	**$74.50**
4560	With ⅜-in. Yoke	5	50	33	**74.50**
4563	Body only	5	50	31	**68.00**
4573	⅜-in. Brush Brass Cap	5	50	5	**6.50**
4583	⅜-in. Yoke only............	5	50	3	**6.00**

2-PIECE PORCELAIN KEYLESS SOCKET BODY

1500 Watts, 600 Volts

Main diameter 2¼ inches; length 3 1/32 inches; screw spacings 1 13/32 to 1½ inches. Can be equipped with lamp grip at an addition to list of **$7.50** per 100.

Assembling screws are waxed with compound that will not soften under heat.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4077	5	50	41	**$50.00**

PORCELAIN KEYLESS SOCKET BODY

1500 Watts, 600 Volts

The assembling screws of mogul sockets are waxed with compound that will not soften under heat.

Main diameter 2¼ inches; flange diameter 2½ inches; length 2½ inches; screw spacings 1 13/32 to 1½ inches.

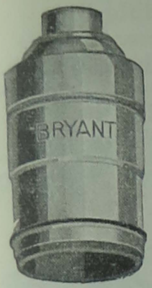
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4062	5	50	30	**$59.50**

BRYANT SOCKETS FOR MOGUL BASE LAMPS

N. E. C. Standard

MOGUL BRASS SHELL SOCKETS

1500 Watts, 600 Volts



Brass shell sockets have asbestos shell and cap linings. Standard finish brush brass. Diameter, 2 inches; length, 3¾ inches.

Keyless—⅜-Inch Cap

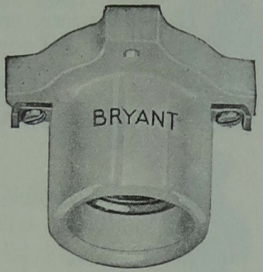
Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
4021	5	50	30	$225.00

Keyless—½-Inch Cap

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
4022	5	50	31	225.00

PORCELAIN CLEAT RECEPTACLE

1500 Watts—250 Volts



Holes for supporting screws are spaced 2⅞ inches on centers. Diameter over lugs 3½ inches. Diameter of neck 2¼ inches. Diameter of main part of base is 2⅝ inches. Height $2\frac{9}{16}$ inches.

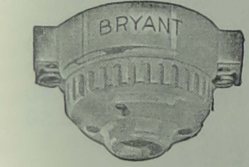
Can be equipped with lamp grip at an addition to list price of $7.50 per 100.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
4073	5	50	40	$81.00

BRYANT PORCELAIN ROSETTES

N. E. C. Standard

JUNIOR 2-PIECE ROSETTES



CLEAT BASE

Main diameter is $2\frac{9}{32}$ in. Diameter over lugs, $2\frac{11}{32}$ in. Height $1\frac{1}{16}$ inches. Holes for supporting screws are spaced 1⅝ inches on centers.

With Fusible Cap

2 Amperes, 125 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
*1501	10	100	40	$29.00

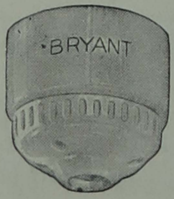
With Fuseless Cap

660 Watts, 250 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H97	10	100	41	16.00

CONCEALED

Outside diameter base, $2\frac{11}{32}$ inches. Height, 2⅛ inches. Holes spaced 1⅝ inches on centers.



With Fusible Cap

2 Amperes, 125 Volts

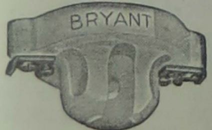
Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
*1502	10	100	49	$29.00

With Fuseless Cap

660 Watts, 250 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
H98	10	100	50	16.00

ONE-PIECE JUNIOR FUSELESS ROSETTES



Main diameter is $2\frac{7}{32}$ inches. Diameter over lugs $2\frac{27}{32}$ inches. Height 1⅜ inches. Holes for supporting screws are spaced 1¼ inches on centers.

Cleat and Concealed Combined

660 Watts, 250 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H96	10	100	23	$13.00

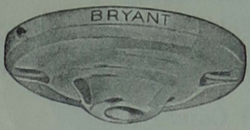
*Not N.E.C. Standard.

BRYANT PORCELAIN ROSETTES

N. E. C. Standard

ONE-PIECE FUSELESS ROSETTES FOR OUTLET BOXES

660 Watts, 250 Volts



No. 572

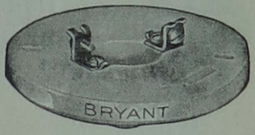
For 3¼ Inch Boxes

Outside diameter is $3\frac{11}{16}$ inches; height 1 inch. Holes for supporting screws are spaced 2¾ inches on centers.

Mfrs. No.	Type	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
H93	Plain	10	50	22	$11.00
574	B.S. Terminal.....	10	50	27	35.00

For 4-Inch Boxes

Outside diameter is $4\frac{21}{32}$ inches; height 1 inch. Holes for supporting screws are spaced 3½ and $3\frac{9}{32}$ inches on centers.



No. 574

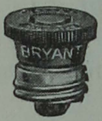
Mfrs. No.	Type	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
H94	Plain	5	50	47	$15.00
575	B.S. Terminal.....	5	50	48	48.50

Machine screws furnished for mounting on box.

BRYANT CONNECTING DEVICES

Composition Screw Body

660 Watts, 250 Volts



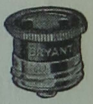
Large composition. Does not have tandem slots.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
100	10	250	19	$11.50

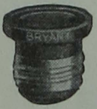
Bakelite Screw Bodies

660 Watts, 250 Volts

With fibre insulating button.



Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H706	25	500	21	$5.00



Bakelite Screw Bodies

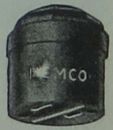
660 Watts, 250 Volts

With templus insulating button.

Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H708	25	500	21	$9.00

Bakelite Cord Connector Body

15 Amp., 125 Volts—10 Amp., 250 Volts

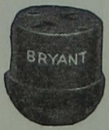


Diameter $1\frac{3}{16}$ inches; $\frac{5}{16}$-inch cord hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H130	10	50	4	$12.34

Composition Cord Connector Body

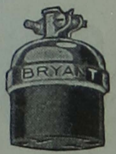
15 Amp., 125 Volts—10 Amp., 250 Volts



Diameter 1⅜ inches; length $1\frac{9}{32}$ inches. $\frac{13}{32}$-inch cord hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
103	10	50	7	$39.50

Armored Cord Connector Body



With steel armored cadmium plated cord grip. $\frac{7}{16}$-inch cord hole. Body is of brown composition.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
5103	10	50	9	$63.50

BRYANT ATTACHMENT PLUG CAPS

HEAVY DUTY AND SPECIAL CAPS

15 Amp., 125 Volts; 10 Amp., 250 Volts

Composition Cap

With 13/32-inch cord hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
KA	10	250	21	**$9.50**

Steel Covered Composition Caps Cadmium Plated

With 13/32-inch cord hole.

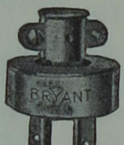
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
KZ	10	250	22	**$12.00**

Double T Cap for Heavy Duty

With 13/32-inch cord hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
TV	10	50	3	**$50.00**

Armored Cadmium Plated Double T Cap for Heavy Duty



With 13/32-inch cord hole. Supplied with cord grip.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
TW	10	30	4	**$56.00**

Steel Armored—Cadmium Plated With Cord Grip

Composition cap with 7/16-inch cord hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
JX	10	50	7	**$37.50**

Composition Caps with Armored Cord Grip

Composition cap with steel cord grip.

Mfrs. No.	Cord Hole	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
JK	7/16	10	50	7	**$34.00**
JM	½	10	50	7	**34.00**

Right Angle Blade Polarity Caps Composition

Cat. No.	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
MA	13/32	10	30	2¼	**$21.50**
Armored, Cord Grip—Cadmium Plated					
MX	7/16	10	30	3½	**42.50**

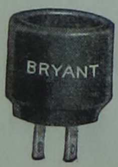
Composition Motor Attachment Cap

With 13/32 inch cord hole. Base is 1 17/32 inches in diameter and 11/16 inch thick. Screw spacings, 1 inch.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
KG	10	50	4¼	**$17.00**

Convenience Outlet to Medium Base Composition Adapter

660 Watts, 250 Volts



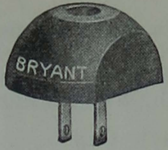
Standard Convenience Outlet to Medium Base composition adapter. Diameter, 1 9/16 inches. Length, 1 15/32 inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
KL	10	50	7	**$39.50**

BRYANT ATTACHMENT PLUG CAPS

HEAVY DUTY AND SPECIAL CAPS

15 Amp., 125 Volts; 10 Amp., 250 Volts



Composition Fusible Cap

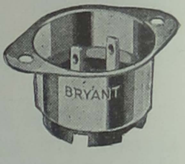
Time Limit to 3 Amperes, 250 Volts

Composition; cord hole 13/32 inch. For two Type 2A glass tube midget fuses Nos. 348, 284 or 349A.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
*KP	10	20	3	**$71.00**

BAKELITE CAPS

Flush Motor Plug Cap



With 13/32-inch cord hole. Diameter of cup 1½ inches; depth 1¼ inches; screw hole spacing 1 15/16 inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
UR	10	50	6½	**$39.50**

BAKELITE CAPS

15 Amp., 125 Volts; 10 Amp., 250 Volts

Hemco Handle Cap

Brown Bakelite with 11/32-inch cord hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
HF	10	100	5	**$5.00**

Hemco Caps

Made of brown Bakelite, with cord holes as listed.

Mfrs. No.	Cord Hole	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
HUT	9/32x⅜	25	500	18	**$3.50**
HUV	13/32	25	500	18	**3.50**
HUX	¼x3/16	25	500	18	**3.50**
HUY	5/16	25	500	18	**3.50**

RUBBER HANDLE CAPS

15 Amp., 125 Volts; 10 Amp., 250 Volts

Rubber Caps—Short Shank

Mfrs. No.	Type	Cord Hole	Pkg. Wt.	Price Per 100
HRA	2 Piece	.312-.390	7	**$8.00**
HRB	2 Piece	.260-.312	7	**7.00**
HRD	1 Piece	.425	8¾	**9.50**
HRS	2 Piece	.578	7	**32.00**

Standard package, 100; carton, 25.

Rubber Caps—Long Shank

Mfrs. No.	Type	Cord Hole	Pkg. Wt.	Price Per 100
HRE	2 Piece	.312-.390	8	**$8.00**
HRF	2 Piece	.260-.312	8	**7.00**

Standard package, 100; carton, 25.

TANDEM BLADE CAP AND BODY

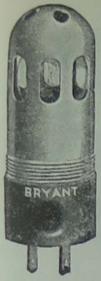
15 Amp., 125 Volts—10 Amp., 250 Volts

Bakelite Cap

Cat. No.	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5420	13/32	10	100	6	**$19.50**
Composition Body with T Slots					
660 Watts, 250 Volts					
5612	....	10	100	18	**36.50**

BRYANT ATTACHMENT PLUGS AND CAPS

COMPOSITION PILOT CAP



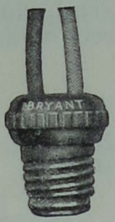
With Brush Brass Guard and Lamp

15 Amp., 125 Volts; 10 Amp., 250 Volts

A standard composition pilot cap with brass guard and lamp for 125 volts. Diameter is 1⅜ inches. Length, 3½ inches. Lamp limits to 125 volts.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
KE	2	10	2	$113.50

COMPOSITION ATTACHMENT PLUG



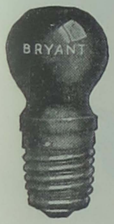
Weatherproof

660 Watts, 600 Volts

In one piece. Has 6-inch No. 14 stranded leads. For longer wires add **$4.50** per 100 devices for each extra foot on each conductor.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
345	10	250	44	$34.00

ATTACHMENT PLUG



With Lacquered Wood Handle

660 Watts, 250 Volts

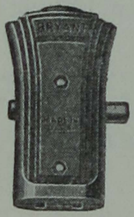
Attachment plug with $\frac{7}{16}$ inch cord hole.

Fuseless

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
1009	10	250	24	$19.50

BRYANT CORD SWITCHES

PENDENT SWITCH AND OUTLET



6 Amp., 125 Volts—3 Amp., 250 Volts

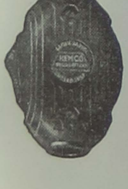
Made of brown bakelite.

Three-Wire

Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H9081	10	50	9	$66.00

HEMCO CORD SWITCH

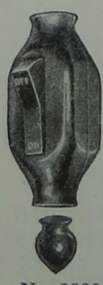
6 Amp., 125 Volts—3 Amp., 250 Volts



Modernistic design, body of brown bakelite, straight-through feed. Milled edge indicating switch handle of brown bakelite.

Cat. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H271	Single Pole	10	50	5	$32.00

FEED-THROUGH CORD SWITCH


No. 2880

Rocker Handle—Black Casing

10 Amp., 125 Volts—5 Amp., 250 Volts

Furnished with knob for use as pendent switch.

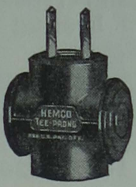
Cat. No.	Cord Holes	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2880	$\frac{13}{32}$	10	50	6	$38.50
Momentary Contact With Metal Finger Piece					
2880-M	$\frac{13}{32}$	10	50	13	70.00

HEMCO WIRING DEVICES

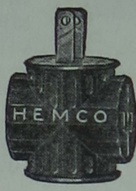
N. E. C. Standard

CUBE TAPS—BAKELITE

15 Amp., 125 Volts; 10 Amp., 250 Volts



No. H207



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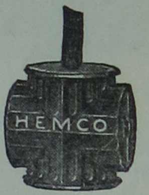
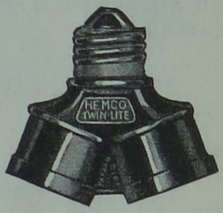


No. H18

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H207	Brown Bakelite	10	100	12	$21.50
H17	Brown, with Prongs	20	100	9	7.60
H17-I	Ivory, with Prongs ..	20	100	9	10.92
H18	Brown, for Cord......	10	100	9	8.54
H18-I	Ivory, for Cord	10	100	9	11.86

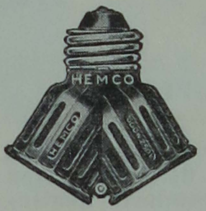
Cord hole, .250x.281 (¼x$\frac{9}{32}$) inch.

HEMCO TWIN-LITES



Brown bakelite. One-piece molded assembly. 660 watts, 250 volts.

Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H200	10	100	21	$42.50

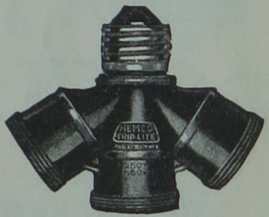


HEMCO TWIN-LITES

Bakelite. 660 watts, 250 volts.

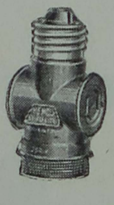
Cat. No.	Color	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H20	Brown	10	100	11	$10.50
H20-I	Ivory	10	100	11	16.50

HEMCO TRIP-LITE



Brown bakelite. One-piece molded assembly. 660 watts, 250 volts.

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H203	10	10	50	$60.00

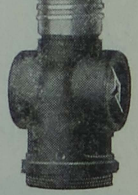


HEMCO THRU-LITE PLUGS

Threaded outlet permits the use of Uno or standard shade holders. Equipped with prong-type side outlets.

Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H204	10	100	15	$40.00

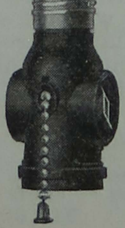
THRU-LITE—BAKELITE



660 Watts, 250 Volts

Popularly priced. Brown or ivory.

Cat. No.	Color	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H14	Brown	10	100	12	$11.00
H14-I	Ivory	10	100	12	16.50



PULL THRU-LITE

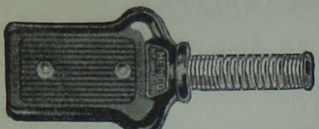
660 Watts, 250 Volts

Pull chain controls lamp outlet. Multiple plug outlets are always on.

Cat. No.	Color	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H15	Brown	10	100	18	$24.00
H15-I	Ivory	10	100	18	29.44

HEMCO WIRING DEVICES

NO. H250 SWITCHLESS PLUG

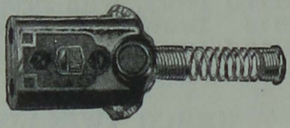


Brown bakelite. Will fit nearly all makes and types of standard heating appliances.

Mfrs. No.	Amperes		Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
	125 Volts	250 Volts				
H250	10	5	10	100	16	**$26.50**

NO. 667 SWITCHLESS PLUG

Brown bakelite. Will fit nearly all types of standard heating appliances. Individually boxed and packed 10 in an attractive display carton.



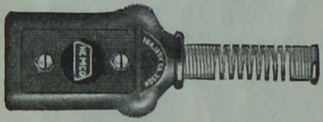
Silver Monel Contacts

Mfrs. No.	Watts	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
667	660	10	100	15	**$45.00**

Tempered Steel Contacts

Mfrs. No.	Watts	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
669	660	10	100	15	**23.00**

NO. H738 SWITCHLESS PLUG

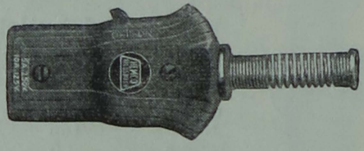


Brown bakelite. Will fit many types of standard heating appliances.

Mfrs. No.	Amperes		Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
	125 Volts	250 Volts				
H738	10	5	10	100	16	**$9.50**

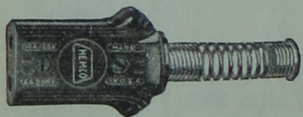
NO. H280 SWITCH APPLIANCE PLUG

Brown bakelite. Will fit many makes and types of standard heating appliances.



Mfrs. No.	Amperes		Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
	125 Volts	250 Volts				
H280	10	5	10	50	11	**$24.50**

TABLE APPLIANCE PLUG WITHOUT SWITCH



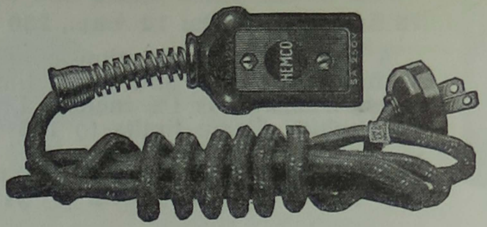
Brown bakelite. This plug is for use with new style table appliance having $\frac{5}{32}$-inch round contact pins, $\frac{9}{16}$ to ⅝-inch long, spaced ½-inch on centers.

Mfrs. No.	Amperes		Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
	125 Volts	250 Volts				
H966	10	5	10	100	11	**$12.00**

HEMCO WIRING DEVICES

NO. HC633 HEATER CORD SET

10 Amp., 125 Volts—5 Amp., 250 Volts



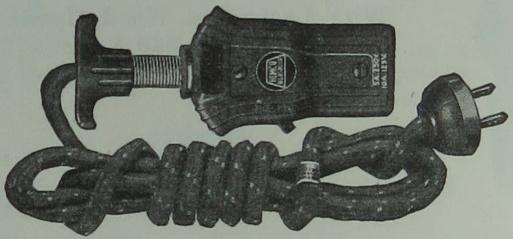
Made of 3000 cycle braided heater cord with switchless plug. When equipped with HG handle grip, add G to catalog number and **$3.50** per 100 sets or devices.

With Switchless Plug

Cat. No.	Length Feet	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
HC633	6	10	50	22	**$40.00**
HC833	8	10	50	25	**50.00**

NO. HC630 HEATER CORD SET

10 Amp., 125 Volts—5 Amp., 250 Volts



Made of 3000 cycle braided heater cord with switch plug. When equipped with HG handle grip, as illustrated, add G to catalog number and **$3.50** per 100 sets or devices.

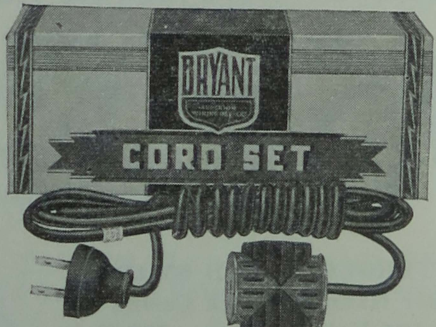
With Switch Plug

Cat. No.	Length Feet	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
HC630	6	10	50	23	**$55.00**
HC830	8	10	50	29	**65.00**

CUBE TAP CORD SETS

With Rubber Cord and Cap

10 Amp., 125 Volts — 5 Amp., 250 Volts



No. HR0618

Put up in attractive display cartons.

Cat. No.	Length Rayon Cord	Car-ton	Std. Pkg.	Price Per 100
HR0618	6 Feet No. 18	10	50	**$38.50**
HR0918	9 Feet No. 18	10	50	**45.00**
HR1218	12 Feet No. 18	10	50	**51.00**
HR1518	15 Feet No. 18	10	50	**57.50**

BRYANT FLAT CORD CONNECTORS

10 Amp., 125 Volts—5 Amp., 250 Volts

No. 2956

No. 2958

Black bakelite. Cord holes, .281 ($\frac{9}{32}$) inch.

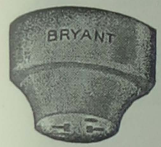
Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
2956	Receptacle Only	10	100	4	$30.00
2958	Plug Only..........	10	100	5	30.00

BRYANT PORCELAIN RECEPTACLES

N. E. C. Standard

PORCELAIN PLUG RECEPTACLES

15 Amp., 125 Volts; 10 Amp., 250 Volts



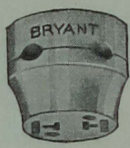
Concealed Base Receptacle

Diameter of base is 2$\frac{7}{32}$ inches. Height, 1⅜ inches. Screw spacings, 1½ inches.

Cat. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
105	10	50	15	$51.00

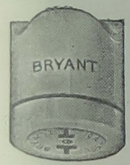
Outlet Box Receptacle

Diameter of base, 1¾ inches; height 1½ inches. Screw spacings, ⅝ inch. Screws furnished for mounting.



Cat. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
112	10	50	13	$47.00

Outlet Box Cover Receptacle



Requires hole 1$\frac{7}{16}$ inches in diameter. Diameter, 1$\frac{11}{16}$ inches; projects ½-inch above and $\frac{31}{32}$-inch below mounting level; from back of cover to bottom of wire grooves, $\frac{11}{16}$-inch.

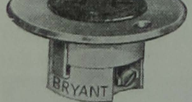
Cat. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
114	10	50	12	$51.00

ROUND PORCELAIN RECEPTACLES

15 Amp., 125 Volts; 10 Amp., 250 Volts

With solid brass plate.

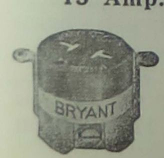
Mfrs. No.	Diam. Plate	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
115	2¾	2	50	19	$106.00
116	3⅝	2	50	28	118.00



No. 115

ROUND PORCELAIN RECEPTACLE

15 Amp., 125 Volts; 10 Amp., 250 Volts



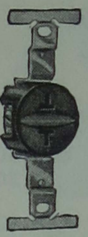
With ears, without plate.

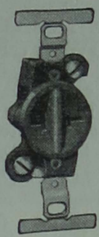
Mfrs. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
733	10	50	9	$31.00

BRYANT FLUSH CONVENIENCE OUTLETS

STANDARD TYPES

15 Amp., 125 Volts—10 Amp., 250 Volts


No. 4831


No. 4810

"T" SLOTS—DOUBLE-SIDED CONTACTS

All bakelite; wide yoke.

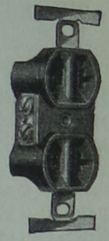
Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
	Brown Bakelite			
4831	10	100	15	$24.50
4810	10	100	16	32.00
	Ivory Bakelite			
4831-I	10	50	7	30.00

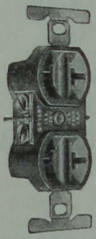
"T" SLOTS—DOUBLE-SIDED CONTACTS

Side Wiring

All bakelite; wide yoke. Four terminal screws.

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
4832	Brown	10	100	22	$32.00
4832-I	Ivory	10	50	11	39.00


No. 4832


No. 4832-X

FOR TWO-CIRCUIT INSTALLATIONS

For Switch Control of One Outlet

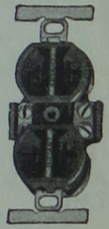
Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
	Two Feeds—Two Returns				
4832-X	Brown	10	100	22	$42.50
4832-XI	Ivory	10	50	11	49.50
	Two Feeds—One Return				
4832-Y	Brown	10	100	22	42.50
4832-YI	Ivory	10	50	11	49.50

"T" SLOTS—DOUBLE-SIDED CONTACTS

Top Wiring

All bakelite; wide yoke Four screw terminals.

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
4812	Brown	10	100	22	$42.50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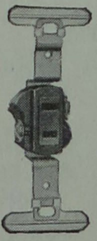

No. 770

FOR TUMBLER SWITCH PLATES

Parallel Slots—Side Wiring

Approved for use only with bakelite tumbler switch plates.

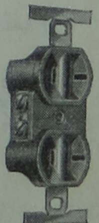
Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
770	Brown	10	100	13	$24.50

POLARIZED—2-WIRE

Double-Sided Contacts

Four terminal screws.

Cat. No.	Style	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
4833	Brown	10	30	7	$86.00
4833-I	Ivory	10	30	7	93.00

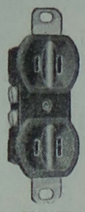

No. 4833

BRYANT FLUSH CONVENIENCE OUTLETS

STANDARD TYPES

15 Amp., 125 Volts—10 Amp., 250 Volts

H141


H142

PARALLEL SLOTS—NARROW YOKE

Side Wiring

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
Brown Bakelite				
H141	10	100	12	**$ 8.50**
H142	10	100	17	**10.50**
Ivory				
H141-I	10	50	6	**13.50**
H142-I	10	50	8	**14.50**

Four terminal screws.

TWIST-TITE—GRIP CONTACTS

Side Wiring

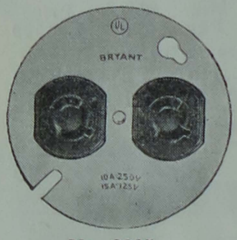
Use standard caps. Plug in straight for normal tension. Twist cap to right for maximum tension. To withdraw, twist to the left.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
9200	Brown	10	100	25	**$32.00**
9200-I	Ivory	10	50	13	**39.00**

No. 9200

BOX-MOUNTING CONVENIENCE OUTLETS

15 Amp., 125 Volts—10 Amp., 250 Volts



No. 9205

TWIST-TITE—GRIP CONTACT

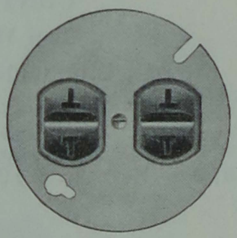
With cadmium finished covers.

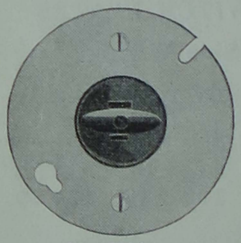
Cat. No.	Box Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
9205	3¼	10	50	20	**$39.50**
9206	4	5	50	25	**42.50**

"T" SLOTS

Satin cadmium finish metal cover.

Cat. No.	Box Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
Single					
3780	3¼	10	100	34	**$32.00**
4780	4	5	50	23	**35.00**
Duplex					
3781	3¼	5	50	16	**35.00**
4782	4	5	50	26	**42.50**


No. 3781


No. H341

PARALLEL SLOTS

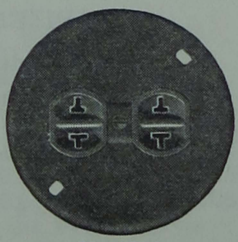
Cadmium plated metal cover.

Cat. No.	Box Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
Single					
H341	3¼	10	50	15	**$12.50**
H441	4	10	50	22	**14.00**
Duplex					
H342	3¼	10	50	15	**15.00**
H442	4	10	50	25	**16.00**

BAKELITE COVERS

"T" Slots

Cat. No.	Box Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5706	3¼	10	50	15	**$50.00**
5707	4	10	50	16	**55.00**
Parallel Slots					
5732	3¼	10	50	15	**28.00**
5712	4	10	50	16	**33.00**


No. 5706

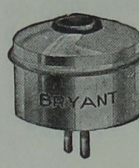
THE BRYANT JUNIOR LINE

N. E. C. Standard

Any Junior cap can be assembled with any Junior receptacle.

BRASS COVERED PORCELAIN CAP

12 Amp., 125 Volts; 6 Amp., 250 Volts



Brass covered porcelain, with 7/16 inch cord hole. For two type 2A fuses Nos. 348, 284, or 349A. Price does not include fuses. Brush brass finish. 7/16-inch cord hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
JD	2	10	2¾	**$91.00**

BRASS COVERED COMPOSITION CAP

With 13/32 inch cord hole. Brush brass finish.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
JB	5	25	1½	**$63.50**

PORCELAIN FLUSH RECEPTACLE

12 Amp., 125 Volts; 6 Amp., 250 Volts

Porcelain body. Plate is brush brass finish. Machine screws and wood screws are furnished for mounting on box. Diameter of plate, 2⅜ inches. Screw spacings, 1 15/32 inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
1509	2	25	4½	**$82.00**

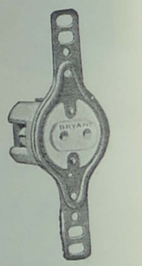
PORCELAIN FLUSH RECEPTACLE

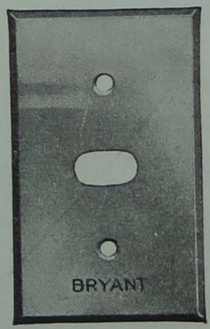
12 Amperes, 125 Volts
6 Amperes, 250 Volts

Screw spacings 3 3/32 inches. Suitable screws are furnished for mounting this device on box. For use with Symbol J plates.

When ordering combination plates specify "J" section to accommodate No. 411 receptacle.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
411	5	25	2½	**$73.00**





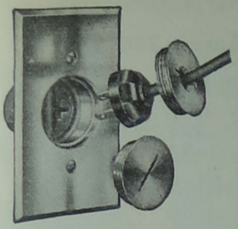
BRASS PLATES FOR NO. 411 RECEPTACLE

The standard finish is brush brass. Plate measures 4½x2¾ inches. Perma finish is $1.50 list per gang less than price of similar plate in brush brass finish.

Mfrs. No.	Thick. Inches	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
OJ61	**.060**	10	25	11½	**$46.50**

BRYANT FLOOR OUTLETS

15 Amp., 125 Volts; 10 Amp., 250 Volts


No. 3799

To plug in lamps or appliances without the nuisance of running long cords from the wall. Two threaded solid brass covers are supplied, one completely closing the outlet when not in use; the other with cord hole and bushing to shield the plug cap when connected. Receptacle is recessed.

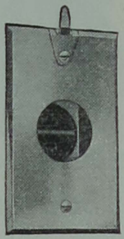
Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3798	With Square Edge Plate	2	10	7	$180.50
3799	With Bevel Edge Plate	2	10	7	148.50

BRYANT CLOCK HANGER OUTLETS

WITH REMOVABLE BRUSH BRASS FLUSH PLATE

15 Amp., 125 Volts; 10 Amp., 250 Volts

This receptacle is designed with hook integral with the cover. The receptacle is completely concealed when the clock is in place. The receptacle provides a convenience outlet for other purposes when desired.



Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2828	.040-inch Plate	2	10	5	$151.00
2828-F	.060-inch Plate	2	10	7	161.50

BAKELITE CLOCK OUTLETS

15 Amp., 125 Volts; 10 Amp., 250 Volts

All bakelite construction. Molded in one piece. Matches appearance of "Uniline" bakelite wall plates.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2992	Brown	10	30	12	$70.00
2992-I	Ivory..	10	30	12	80.00

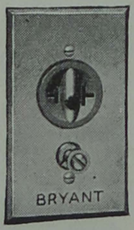
BRYANT FAN HANGER OUTLETS

YOKE MOUNTING AND STUD SUPPORT TYPES

15 Amp., 125 Volts; 10 Amp., 250 Volts

A cadmium-plated steel sub-plate supports the receptacle. The brush brass plate is held independently and therefore will not loosen even if the fan hanger supporting screw is not replaced when fan is removed. With Bakelite receptacle and brush brass flush plate.

Special finishes on plates for fan hangers take a 10 per cent advance over usual special finish charges.



Nos. 3750-3751

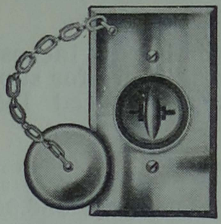
In some installations the stud type fan hanger is preferred to the yoke type. An extremely rugged form of mounting as it utilizes the box itself as a support. The stud adapter will fit any ⅜-inch male stud.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3750	With Yoke Mounting..	10	20	14	$260.00
3751	With Stud Support....	10	20	14	260.00

BRYANT FLUSH RECEPTACLES

OUTDOOR FLUSH RECEPTACLES

15 Amp., 125 Volts; 10 Amp., 250 Volts


No. 3795

A permanent weatherproof convenience outlet for plugging in outdoor lighting connections or appliances. Sturdily designed to weather rain, snow, ice and dampness. Nonrusting cadmium finished .060-inch brass plate and cap. When not in use, a metal cap screws over the opening.

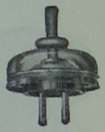
When connected the regular cap may be covered with metal cap No. 3797.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3795	2-Wire Receptacle......	2	10	6	$172.00
3796	3-Wire Receptacle......	2	10	7	244.00

METAL CAP WITH RUBBER BUSHING

For use with Nos. 3795, 3796 and 3801 receptacles.

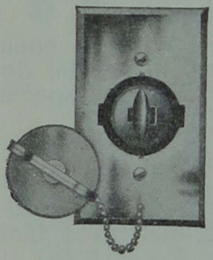
Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3797	2	10	¾	$43.50


No. 3797

BRYANT WEATHERPROOF OUTLETS

WITH QUICK-CLAMP COVER

15 Amp., 125 Volts; 10 Amp., 250 Volts



Weather protected by rubber gasket which fits between mounting surface and plate. The plate and cover are made of brass, cadmium finished.

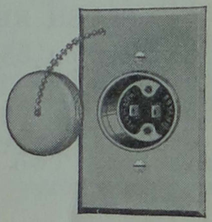
Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3880	10	30	9	$120.00

OUTDOOR FLUSH CONNECTOR

15 Amp., 125 Volts; 10 Amp., 250 Volts

Provides an ideal weatherproof means of supplying current to trailers. Use No. 103 or H130 as connecting plug.

Depth, 1$\frac{3}{16}$ inches; diameter, 1½ inches.



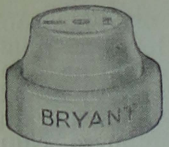
Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3801	2	10	5½	$250.00

We are in a position to supply many items not shown in this catalog and shall be pleased to receive your inquiries and orders.

POLARIZED RECEPTACLES AND PLUGS

N.E.C. Standard

2-WIRE 20-AMP. RECEPTACLES—POLARIZED

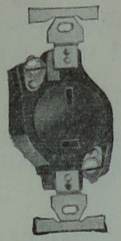


2-Wire—Porcelain Receptacle For Concealed Wiring

Diameter of base, 2½ inches; height, 1 13/32 inches. Holes for supporting screws are spaced 1½ inches on centers.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
622	10	30	13	$85.00

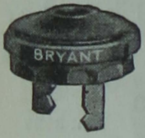
Composition Flush Receptacle



Length 2 9/16 inches; width 1 11/16 inches; depth 1 1/16 inches. Supporting screw spacing, 3 9/32 inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
556	10	30	9	$106.00

20-AMPERE PLUGS—POLARIZED

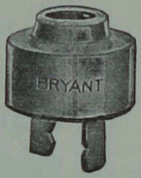


2-Wire—Composition Plug

With 9/16-inch cord hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
652	10	30	6	$51.00

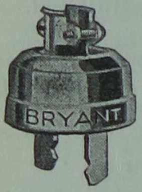
2-Wire—Composition Plug Brass Covered



With 9/16-inch cord hole. Standard finish, brush brass.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
653	10	30	8	$79.50

When No. 653 plug is ordered with an equal quantity of symbol F flush plates, in special finishes, there will be no extra charge for special finishes on the plugs.



Steel—With Cord Grip

20 Amperes, 250 Volts

No. 723 is for ⅜-inch to 9/16-inch diameter cord.

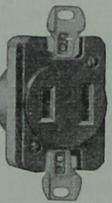
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
723	10	30	6	$79.50

2-WIRE POLARIZED CONNECTORS

FLUSH RECEPTACLE

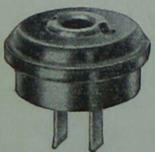
Composition boss, porcelain body. Length, 2½ inches; width, 1 21/32 inches; depth, 1⅞ inches.

Requires No. 7439 plate. Fits single gang box. Two No. 7438 require three-gang box.



No. 7438

Cat. No.	Rating		Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
	Amp.	Volts				
7438	30	250	10	30	16	$141.00
.040 Brass Plate						
7439	----	------	10	30	6	23.50



No. 7437

COMPOSITION CAP

30 Amp., 250 Volts

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
7437	5	30	20	$74.50

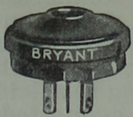
Cord hole, .656 (21/32) inch.

POLARIZED RECEPTACLES AND PLUGS

N. E. C. Standard

3-WIRE POLARIZED CAPS

15 Amp., 125 Volts; 10 Amp., 250 Volts



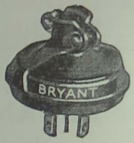
No. 9111

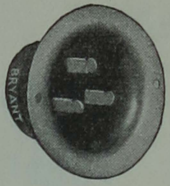
Brown Bakelite Cap

Mfrs. No.	Cord Hole	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9110	13/32	10	50	4	$34.00
Composition Cap					
9111	13/32	10	50	6	34.00

Composition Cap—With Armored Cord Grip

Mfrs. No.	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
9112	⅜ to ½	10	50	8	$54.00





Flush Motor Plug Cap

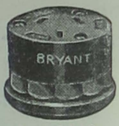
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9115	10	50	10	$78.50

3-WIRE POLARIZED CORD CONNECTORS

15 Amp., 125 Volts; 10 Amp., 250 Volts

Composition Cord Connector Bodies

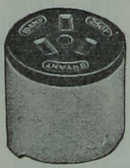
Mfrs. No.	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
9113	27/64	10	50	9	$71.50
With Armored Cord Grip					
9114	⅜ to ½	10	50	12	92.50



No. 9113

3-WIRE POLARIZED RECEPTACLES

15 Amp., 125 Volts; 10 Amp., 250 Volts



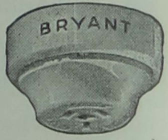
Porcelain, Flush Conduit Box Receptacle

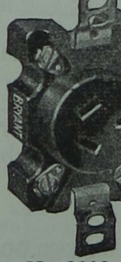
Bakelite top, screw terminals.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9117	10	50	12	$54.00

Porcelain Concealed Base Receptacles

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
9119	10	50	20	$79.50
With 2½-Inch Diam. Base 20 Amps., 250 Volts				
9325	10	30	14	102.00





No. 9116

Composition Flush Receptacles

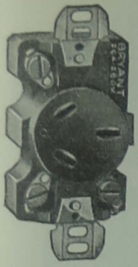
Bases are 2½x1⅝ inches; depth 31/32 inch; supporting screw spacing, 3 9/32 inches. Top wiring terminals. Take standard F plates.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9116	10	50	15	$115.00
Grounding Terminal Connected to Yoke				
9120	10	50	15	115.00

POLARIZED RECEPTACLES AND PLUGS

N.E.C. Standard

3-WIRE PORCELAIN RECEPTACLE



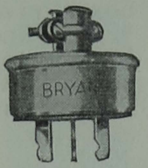
20 Amp., 250 Volts

Base is $2\frac{9}{16}$x$1\frac{11}{16}$ inches; depth $1\frac{7}{32}$ inches. Supporting screw spacing, $3\frac{9}{32}$ inches. Takes standard F plate.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9326	10	30	12	**$127.00**
With Ground Yoke				
9326G	10	30	12	**127.00**

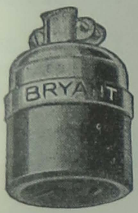
3-WIRE POLARIZED CAP

20 Amperes, 250 Volts



Steel covered, cadmium plated cap. For ⅜ to ⅝ cords.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
With Cord Grip				
9322	10	20	4¼	**$101.00**
With Grounded Yoke				
9322G	10	20	4¼	**101.00**



3-WIRE POLARIZED CONNECTOR

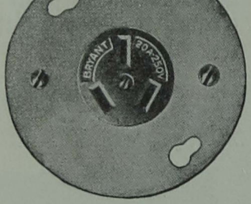
20 Amperes, 250 Volts

Composition, steel covered, cadmium plated. ⅜ to ⅝ inch cord hole.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
9323	10	20	8	**$156.00**

3-WIRE POLARIZED RECEPTACLE

20 Amperes, 250 Volts

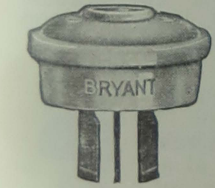


With cadmium plated cover for 4-inch outlet boxes.

Mfrs. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
9324	5	30	22	**$140.00**

3-WIRE HEAVY DUTY CAPS

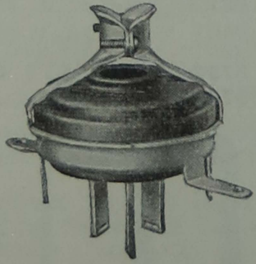
30 Amperes, 250 Volts



PORCELAIN CAPS

With Binding Screw Terminals

Mfrs. No.	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
690	¾	2	10	7	**$60.50**



COMPOSITION CAP

With Grounding Prongs and Cord Grip

Mfrs. No.	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
786	¾	2	10	10	**$151.00**

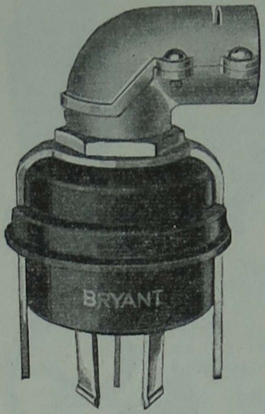
No. 786 is equipped with ears for permanently attaching cap to the plate, also for ground connection. Ears can be removed if not required.

POLARIZED RECEPTACLES AND PLUGS

N. E. C. Standard

3-WIRE HEAVY DUTY CAPS

50 Amp., 250 Volts



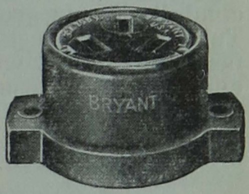
Composition Cap with Solder Lugs

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
With Grounding Prongs and Straight Clamp for Armored Conductor				
775	2	10	14	**$212.00**
With Grounding Prongs and Angle Clamp for Armored Conductor				
776	2	10	16	**228.00**

3-WIRE HEAVY DUTY RECEPTACLES

50 Amp., 250 Volts

Surface Receptacles with Solder Lugs

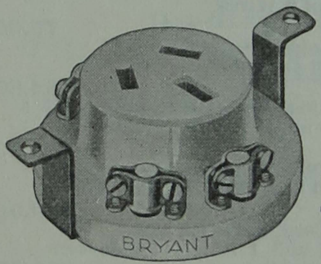


Fit G-E No. SP72C102 cover for $4\frac{11}{16}$-inch square box.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
Porcelain				
747	5	10	11	**$106.00**
Composition				
787	5	10	7	**165.50**

3-WIRE HEAVY DUTY RECEPTACLE

For Range Installations

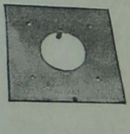


Flush Receptacle with Solder Lugs

Porcelain

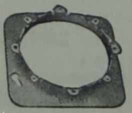
Mfrs. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
757	2	10	12	**$466.00**

FLUSH PLATES FOR 3-WIRE RECEPTACLE NO. 757



Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
Solid Brass Plate				
691	2	10	10	**$151.00**
.060 in. Cadmium Plated Steel Plate				
788	2	10	5	**75.50**

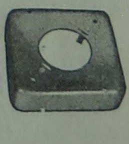
BOX COVERS FOR 3-WIRE RECEPTACLE NO. 757



For Plaster Box

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
758	2	10	5	**$75.50**

For $4\frac{11}{16}$-In. Box



Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
759	2	10	9	**$151.00**

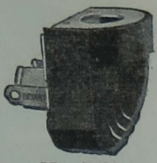
RANGE OUTLET RECEPTACLE AND FITTINGS

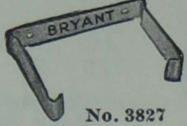
N.E.C. Standard

3-WIRE POLARIZED RANGE CONNECTORS

No. 3826

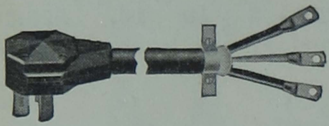
No. 3839

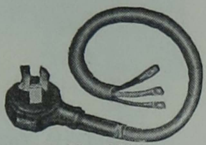

No. 3833



No. 3827

No. 3828


No. 3898


No. 3829

All-rubber and armored 3-wire cord sets. 3-wire range receptacle; high heat black composition. Opening for ¾-inch conduit, knockout for 1-inch conduit. Range grounding strap readily attached. Tube and connector clamp to protect grip non-metallic cable where it passes through floor. Cap and lug joints proof against loosening.

No. 3833 range cap, bakelite cover, grounding prongs, clamp for 3 conductor No. 6 or No. 8 armored or rubber covered cable.

Mfrs. No.	Amperes 250 Volts	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
3-Wire Surface Range Receptacle					
3826	50	2	10	11	$193.00
Grounding Strap for No. 3826					
3827	----	2	10	½	43.00
Tube and Connector Clamp For 3 No. 6 Wires					
3828	----	2	10	4	75.00
Tube and Connector Clamp For 3 No. 8 Conductors					
3835	----	2	10	4	64.50
Rubber 3-Wire Cord Set with Bakelite Cap 36 Inches Long, 2 No. 8 and 1 No. 10 Conductors					
3898	35	2	10	20	230.00
Rubber 3-Wire Cord Set with Bakelite Cap 36 Inches Long, 2 No. 6 and 1 No. 8 Conductors					
3899	50	2	10	25	240.00
Rubber 3-Wire Cord Set with Cap 38 Inches Long, 2 No. 8 and 1 No. 10 Conductors					
3829	35	2	10	19	289.50
Rubber 3-Wire Cord Set with Cap 38 Inches Long, 2 No. 6 and 1 No. 8 Conductors					
3830	50	2	10	23	343.50
Rubber 3-Wire Cord Set with Cap 38 Inches Long, 3 No. 6 Conductors					
3857	50	2	10	25	407.50
3-Wire Range Cap					
3833	50	2	10	12	228.00
Armored 3-Wire Cord Set with No. 3833 Cap 38 Inches Long, 3 No. 8 Conductors					
3852	50	2	10	33	583.00
Armored 3-Wire Cord Set with No. 3833 Cap 38 Inches Long, 3 No. 6 Conductors					
3853	50	2	10	39	689.00
Rubber 3-Wire Cord Set with No. 3833 Cap 38 Inches Long, 2 No. 8 and 1 No. 10 Conductors					
3854	35	2	10	23	289.50
Rubber 3-Wire Cord Set with No. 3833 Cap 38 Inches Long, 2 No. 6 and 1 No. 8 Conductors					
3855	50	2	10	30	343.50
¾-Inch 90 Angle Connector with Rubber Bushing for use with No. 3829					
3839	----	2	10	3	64.00
¾-Inch 90 Angle Connector with Rubber Bushing for use with No. 3830					
3840	----	2	10	3	64.00

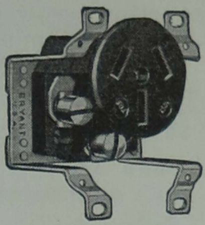
When No. 3839 or No. 3840 are assembled to cord sets, add C to catalog number of cord set and add **$64.00** to list price.

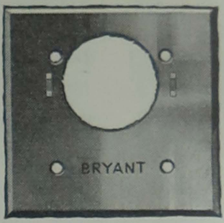
RANGE OUTLET RECEPTACLE AND FITTINGS

N.E.C. Standard

3-WIRE FLUSH RANGE RECEPTACLE

50 Amperes, 250 Volts


No. 3845



No. 3847

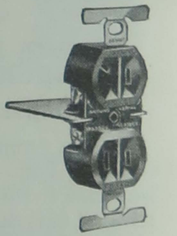
Designed for mounting in standard 4-inch square box (Universal catalog number 52151-S box with ¾-inch knockouts and 52C18 cover). Receptacle is bakelite with grounding contacts in the plate. Straight-in wiring and solderless terminals make installation easy. Plates listed, brush brass finish.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3845	Receptacle only	2	10	7	$265.00
3846	Receptacle with .040-inch plate	2	10	10	329.00
3862	Receptacle with .060-inch plate	2	10	11	339.50
3847	.040-inch plate only	2	10	4	64.00
3861	.060-inch plate only	2	10	4	74.50

BRYANT RADIO OUTLETS

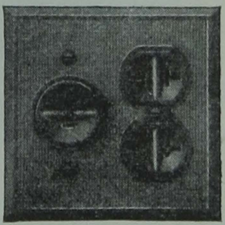
15 Amperes, 125 Volts; 10 Amperes, 250 Volts

DUPLEX OUTLET



Radio and Power connections. Divider plate separates aerial and ground from the power connections. Divider plate fits 1½, 2, and 2½-inch boxes.

Cat. No.	Finish	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3789	Brown	2	10	3	$96.00
3789-I	Ivory	2	10	3	103.00



TWO-GANG OUTLET

Radio and two power outlets, radio cap, and bakelite plate HFV32. Carton, 2.

Cat. No.	Finish	Std. Pkg.	Price Per 100
22184	Brown	10	$120.00
22184-I	Ivory	10	153.00

Pkg. Wt., 8 lbs.

RADIO CAPS

For Nos. 22149 and 3789. Cord hole, .281x.375 (9⁄32x⅜"). One blade set at an angle to prevent insertion in power outlet.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3790	Brown	2	10	¼	$13.50
3790-I	Ivory	2	10	¼	19.00

4-INCH BOX COVER WITH DIVIDER

Finished to U. S. Government's specifications.

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3785	2	10	5¾	$67.00

BRYANT SELF CLOSING RECEPTACLES

15 Amp., 125 Volts; 10 Amp., 250 Volts

SINGLE FLUSH RECEPTACLE

Composition

For use with Symbol D3 brass plates. Length of cup $2\frac{9}{16}$ inches; width $1\frac{23}{32}$ inches; depth $1\frac{11}{16}$ inches. Supporting screw spacing $3\frac{9}{32}$ inches.

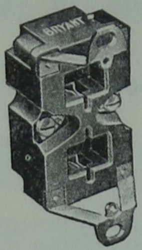
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
730	10	30	10	$85.00

DUPLEX FLUSH RECEPTACLE

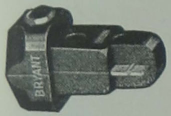
Composition

For use with Symbol D2 brass plates. Length cup $2\frac{11}{16}$ inches. Supporting screw spacing $3\frac{9}{32}$ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
657	10	30	11	$127.50



BROWN BAKELITE PLUG



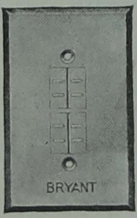
For one or two cords. This plug is for use with Nos. 730 and 657. Cord holes, $\frac{23}{64}$x$\frac{7}{32}$ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
659	10	30	2½	$85.00

BRASS PLATES FOR SELF CLOSING RECEPTACLES

Made in .060-inch only. Screw hole spacing, single gang, 2⅜ inches. Prices in connection with other sections upon application.

Mfrs. No.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Per 100
Single Gang for No. 730 Only				
OD361	10	30	8	$83.00
Duplex for No. 657 Only				
OD261	10	30	8	127.50



No. OD261

The standard finish is brush brass which will be furnished when no finish is specified.

The list price of Perma finish for any flush plate is **$1.50** list per 100 gangs less than the list price of similar plate in brush brass finish.

SCREW PLUG FLUSH RECEPTACLE

660 Watts, 250 Volts

SCREW PLUG TYPE

Single—Porcelain Cup

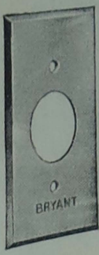
Listed as standard by Underwriters Laboratories for use as a lampholder only.

Length porcelain cup, $2\frac{9}{16}$ inches; width, $1\frac{18}{32}$ inches; depth, $1\frac{9}{32}$ inches. Supporting screw spacings, $3\frac{9}{32}$ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
1708	10	100	28	$25.50

BRYANT FLUSH PLATES FOR FLUSH RECEPTACLES

N. E. C. Standard



No. OF61

BRASS PLATES WITHOUT DOORS FOR SINGLE FLUSH RECEPTACLES

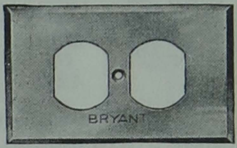
Standard finish, brush brass. Perma finish is a durable colored lacquer that resembles brush brass.

One-Gang, .060-Inch Stamped

Standard Finish					Perma Finish		
Mfrs. No.	Wt.Lbs. Std.Pkg.	Price Per 100	Carton Gangs	Std. Pkg. Gangs	Mfrs. No.	Wt.Lbs. Std.Pkg.	Price Per 100
OF61	25	$23.50	10G	100G	OF61-P	25	$22.00
One-Gang, .040-Inch Standard Stamped							
OF41	16	13.00	10G	100G	OF41-P	16	11.50
One-Gang Solid							
OF11	30	56.00	10G	100G	OF11-P	30	54.50

BRASS PLATES WITHOUT DOORS FOR DUPLEX FLUSH RECEPTACLES

For receptacles Nos. 122, 142, 792, 4812 and 4832 Symbol V. Perma finish is a durable colored lacquer that resembles brush brass.



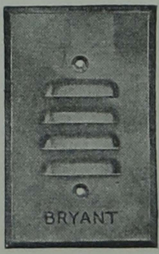
No. OV61

One-Gang, .060-Inch Stamped

Standard Finish					Perma Finish		
Mfrs. No.	Wt.Lbs. Std.Pkg.	Price Per 100	Carton Gangs	Std. Pkg. Gangs	Mfrs. No.	Wt.Lbs. Std.Pkg.	Price Per 100
OV61	23	$23.50	10G	100G	OV61-P	23	$22.00
One-Gang, .040-Inch Stamped							
OV41	15	13.00	10G	100G	OV-41-P	15	11.50
One-Gang, Solid							
OV11	26	56.00	10G	100G	OV-11-P	26	54.50

BRYANT BRASS LOUVRE PLATES

N. E. C. Standard



LOUVRE PLATE FOR FLUSH LAMP RECEPTACLE

Can be used with No. 427 receptacle. Made in .040-inch only. Standard finish is brush brass which will be furnished when no finish is specified.

One-Gang, .040-Inch Brass

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
OL241	5	30	18	$121.00

BROWN BAKELITE INSERTS

To fill opening in "S" plates. Insert is mounted on metal yoke.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
756	10	30	1	$22.50

No. 756

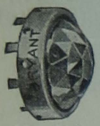
BRYANT BULL'S EYE RECEPTACLES

N. E. C. Standard

ROUND RUBY JEWELS WITH BRASS RINGS

No. 3850

Green, clear, opalescent, amber or blue jewels can be furnished on special order without extra charge. For mounting in F plates.

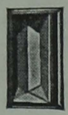


No. 737

Solid Ring—Removable from Front

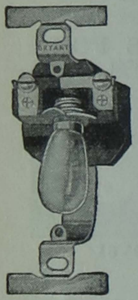
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
3850	10	30	1½	**$36.00**
Ventilated Ring				
737	10	30	2	**113.00**

RECTANGULAR RUBY JEWEL



With solid rim, for mounting in the slot of an S plate.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
746	10	30	½	**$36.00**



FLUSH LAMP RECEPTACLE

With No. 618 125-Volt Candelabra Base Lamp

Depth, 1⅝ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
427	10	30	6	**$106.00**
With No. 5618 125-volt Intermediate Base Lamp.				
3927	10	30	6	**106.00**

LAMP FOR BULL'S EYE RECEPTACLES

Candelabra base, 6-watt Mazda lamp.

Mfrs. No.	Volts	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
618	125	10	30	½	**$30.00**

SELF-RESTORING DOOR SWITCHES

N. E. C. Standard

SINGLE POLE

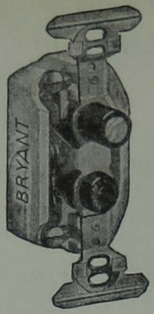
6 Amperes, 125 Volts—3 Amperes, 250 Volts

Complete with box, brass plate 4⅝x1⅜ inches and with brass strike plate. Size of box: length, 3⅝ inches; width, 1¼ inches; depth, 2⅝ inches, with one ⅝-inch knockout in bottom, one ⅝-inch knockout in one end and one ⅞-inch knockout in other end.

Switch less plate, **$327.50** list per 100; switch less box, **$339.50** list per 100.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
Switch On When Door is Open				
2355	2	25	30	**$375.50**
Switch Off When Door is Open				
2356	2	10	12	**375.50**

BRYANT PUSH BUTTON SWITCHES



PUSH BUTTON SWITCHES WITH PLASTER EARS

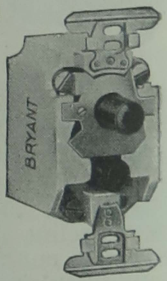
Extremely shallow switch for use in thin partitions. Porcelain cups are $2\frac{9}{16}$ inches long, $1\frac{7}{32}$ inches deep. Nos. 5501 and 5501-L are $1\frac{7}{16}$ inches wide. Other switches are $1\frac{11}{16}$ inches wide. Supporting screw spacing, $3\frac{9}{32}$ inches.

Mfrs. No.	Amperes 125 Volts	Amperes 250 Volts	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100	Lock Switches Mfrs. No.	Lock Switches Price Per 100
Single-Pole								
5501	10	5	10	100	34	**$41.00**	**5501L**	**$116.00**
Three-Point								
5503	10	5	10	50	19	**59.50**	**5503L**	**134.50**
Single-Pole Quadruple Break								
5520	20	10	10	50	18	**117.00**	**5520L**	**192.00**

Push button and push lock switches of the same description may be assorted to make up a standard package. These switches can be furnished as momentary contact switches. For this feature add **$110.00** per 100 to list.

TYPE P ELECTROLIER SWITCHES

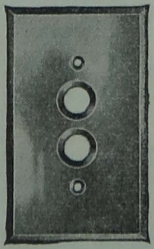
5 Amperes, 125 Volts
2 Amperes, 250 Volts



These switches have one metal button operating type O switch mechanism. The other button is composition and does not move. Length of porcelain cups, $2\frac{9}{16}$ inches; width, $1\frac{11}{16}$ inches; depth, $1\frac{21}{32}$ inches. Supporting screw spacings, $3\frac{9}{32}$ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
2625	1, 2, 1&2, Off	2	10	7	**$174.00**
2628	1, Off, 2, Off	2	10	7	**174.00**

FLUSH PLATES FOR TWO-BUTTON TYPE PUSH SWITCHES



N. E. C. Standard

The standard finish of these plates is brush brass, which will be shipped when no finish is specified. Standard spacings and dimensions only. Switches in gangs spaced $1\frac{13}{16}$ inches on centers.

Brass mounting screws are packed in the carton with each plate.

Stamped Brass Plates, .040-Inch

Brush Brass			Gangs			Spray Brass		
Mfrs. No.	Pkg. Wt.	Price Per 100	No. of	Carton	Std. Pkg.	Mfrs. No.	Pkg. Wt.	Price Per 100
OP41	19	**$13.00**	1	10G	100G	**OP41-P**	19	**$11.50**
OP42	16	**26.00**	2	10G	100G	**OP42-P**	16	**23.00**
OP43	15	**39.00**	3	10G	100G	**OP43-P**	15	**34.50**

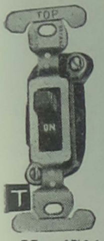
BRYANT FLUSH TUMBLER SWITCHES

N. E. C. Standard

MERCURY SILENT FLUSH SWITCHES

"T" Rated for Type C Lamp Applications

5 Amp., 125 Volts; 5 Amp., 250 Volts AC or DC



No. 4701

Brown Handle

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4701	Single-pole	10	100	21	**$85.00**
4702	Double-pole	10	50	14	**138.00**
4703	Three-point	10	50	14	**106.00**
4704	Four-point	2	10	3	**340.00**

Ivory Handle

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4701-I	Single-pole	10	50	11	**95.00**
4702-I	Double-pole	10	30	9	**148.00**
4703-I	Three-point	10	30	9	**116.00**
4704-I	Four-point	2	10	3	**350.00**

GENERAL-PURPOSE TYPE

With Porcelain Cups—"T" Rating

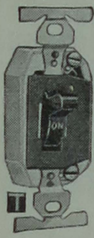
Prices are for either Brown or Black handles. For Black Handle, add -Bla to catalog number.

For Ivory Handle, add -I to catalog number, and **$10.00** to list price.

For Lock Type, add -L to catalog number and **$75.00** to list price.

For Luminous Tip in handle, add -LT to catalog number, and **$40.00** to list.

For Momentary Contact, add -M to catalog number, and **$110.00** to list.



No. 3951

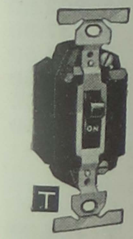
Cat. No.	Amperes 125V.	250V.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3951	10	5	S. P., Ind.	10	100	30	**$35.00**
3952	10	10	D. P., Ind.	10	50	17	**89.50**
3953	10	5	3-Point	10	50	17	**57.50**
3954	5	2	4-Point	2	10	4	**297.00**
3955	20	10	D. P., Ind.	2	10	4	**127.50**
3920	20	10	S. P.,* Ind.	10	50	16	**89.50**

*Quadruple break.

Depth of cups, 1 3/32 inches. No. 3920 is available with special handles listed above.

SPECIFICATION TYPE

Composition Enclosed—"T" Rating



No. 4961

Prices are for either Brown or Black handles. For Black Handle, add -Bla to catalog number.

For Ivory Handle, add -I to catalog number, and **$10.00** to list price.

For Lock Type, add -L to catalog number, and **$75.00** to list price.

For Luminous Tip in handle, add -LT to catalog number, and **$40.00** to list.

For Momentary Contact, add -M to catalog number, and **$110.00** to list.

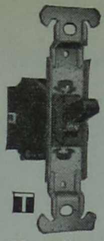
Cat. No.	Amperes 125V.	250V.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
4961	10	5	S. P., Ind.	10	50	18	**$85.00**
4962	10	10	D. P., Ind.	2	10	4	**138.00**
4963	10	5	3-Point	10	20	7½	**106.00**
4964	5	2	4-Point	2	10	4	**339.50**
4965	20	10	D. P., Ind.	2	10	4	**159.00**
4966	20	20	S. P.,* Ind.	10	20	8	**138.00**

*Quadruple break.

Depth of cups, 1⅜ inches. No. 4066 is available with special handles listed above.

These switches can be furnished with metal handle, without extra charge, for vaporproof boxes. In ordering, add -SH to catalog number wanted.

BRYANT FLUSH TUMBLER SWITCHES



No. 1815-D

HIGH GRADE

Mechanism Totally Enclosed in Bakelite

Dimensions of cups: 1½ inches long, ⅞-inch wide, 1⅛ inches deep.

Single-Pole

10 Amp., 125 Volts; 5 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1815-D	Brown handle..	10	100	20	**$ 35.00**
1815-DL	Lock type	10	100	20	**110.00**
1915-D	Ivory handle....	10	50	10	**41.00**
1915-DL	Lock type	10	50	10	**116.00**
1815-DMO	Momentary, normally open	2	10	3	**145.00**
1815-DMC	Momentary, normally closed	2	10	3	**145.00**

Three-Way

10 Amp., 125 Volts; 5 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1835-D	Brown handle..	10	50	8¾	**57.50**
1835-DL	Lock type	10	50	8¾	**132.50**
1935-D	Ivory handle....	10	30	7	**63.50**
1935-DL	Ivory lock type	10	30	7	**138.50**
1835-DLT	Luminous tip....	10	50	8¾	**97.50**

Double-Pole

10 Amp., 125 Volts; 10 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1825-D	Brown handle..	10	50	9	**89.50**
1825-DL	Lock type	10	50	9	**164.50**
1925-D	Ivory handle	2	10	2	**95.50**
1925-DL	Ivory lock type	2	10	2	**170.50**
1825-DLT	Luminous tip....	10	50	9	**129.50**

Four-Way

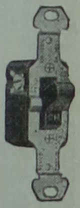
5 Amp., 125 Volts; 2 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1844-D	Brown handle..	2	10	4	**180.00**
1844-DL	Lock type	2	10	4	**255.00**
1944-D	Ivory handle....	2	10	4	**186.00**
1944-DL	Ivory lock type	2	10	4	**261.00**
1844-DLT	Luminous tip....	2	10	4	**220.00**

COMPETITIVE GRADE

10 Amp., 125 Volts; 5 Amp., 250 Volts

Mechanism totally enclosed in bakelite. Side wiring. Cups: 1 21/32 inches long, 29/32-inch wide, 1 7/32 inches deep.

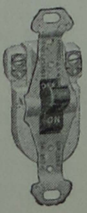


Single-Pole

Cat. No.	Handle	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H61	Brown	10	100	15	**$22.00**
H61-I	Ivory....	10	100	15	**28.00**

Three-Point

Cat. No.	Handle	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H63	Brown	10	50	7¾	**30.00**
H63-I	Ivory....	10	50	7¾	**36.00**



Porcelain cups: 2 1/16 inches long, 1½ inches wide, 1 9/32 inches deep.

Single-Pole

Cat. No.	Handle	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H51	Brown	10	100	32	**$12.50**
H51-I	Ivory....	10	100	32	**13.50**

Three-Point

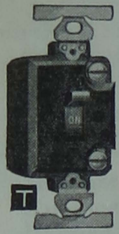
Cat. No.	Handle	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H53	Brown	10	50	17	**19.00**
H53-I	Ivory....	10	50	17	**20.00**

BRYANT FLUSH TUMBLER SWITCHES

N.E.C. Standard

HIGH-CAPACITY TYPE—BAKELITE ENCLOSED

20-AMPERE LINE—"T" RATING



No. 5421

No. 5423

Single-Pole

20 Amp., 125 Volts; 20 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5421	Brown Handle	10	30	11	**$138.00**
5421-Bla	Black Handle	10	30	11	**138.00**
5421-I	Ivory Handle	10	15	5½	**148.00**
5421-L	Lock Type	10	30	11	**213.00**
5426	Quadruple Break	2	10	4	**159.00**

Three-Way

20 Amp., 125 Volts; 20 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5423	Brown Handle	2	10	4	**159.00**
5423-Bla	Black Handle	2	10	4	**159.00**
5423-I	Ivory Handle	2	10	4	**169.00**
5423-L	Lock Type	2	10	4	**234.00**

Double-Pole

20 Amp., 125 Volts; 20 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5422	Brown Handle	2	10	4	**180.50**
5422-Bla	Black Handle	2	10	4	**180.50**
5422-I	Ivory Handle	2	10	4	**190.50**
5422-L	Lock Type	2	10	4	**255.50**

Four-Way

20 Amp., 125 Volts; 10 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5424	Brown Handle	2	10	4	**477.00**
5424-Bla	Black Handle	2	10	4	**477.00**
5424-I	Ivory Handle	2	10	4	**487.00**
5424-L	Lock Type	2	10	4	**552.00**

30-AMPERE LINE—"T" RATING

Single-Pole

30 Amp., 125 Volts; 30 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5431	Brown Handle	10	30	11	**$170.00**
5431-Bla	Black Handle	10	30	11	**170.00**
5431-I	Ivory Handle	10	15	5½	**180.00**
5431-L	Lock Type	10	30	11	**245.00**
5436	Quadruple Break	2	10	4	**212.00**

Three-Way

30 Amp., 125 Volts; 30 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5433	Brown Handle	2	10	4	**212.00**
5433-Bla	Black Handle	2	10	4	**212.00**
5433-I	Ivory Handle	2	10	4	**222.00**
5433-L	Lock Type	2	10	4	**287.00**

Double-Pole

30 Amp., 125 Volts; 30 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5432	Brown Handle	2	10	4	**244.00**
5432-Bla	Black Handle	2	10	4	**244.00**
5432-I	Ivory Handle	2	10	4	**254.00**
5432-L	Lock Type	2	10	4	**319.00**

Four-Way

20 Amp., 125 Volts; 10 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
5434	Brown Handle	2	10	4	**636.00**
5434-Bla	Black Handle	2	10	4	**636.00**
5434-I	Ivory Handle	2	10	4	**646.00**
5434-L	Lock Type	2	10	4	**711.00**

Dimensions of cup: 2¾x1¾x1 15/16 inches.

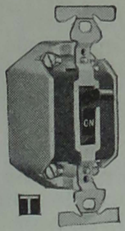
BRYANT FLUSH TUMBLER SWITCHES

N.E.C. Standard

HIGH CAPACITY TYPE—GRAY PORCELAIN CUP

20-AMPERE TYPE—"T" RATING

No. 3971



No. 3972

No. 3973

Single-Pole

20 Amp., 125 Volts; 10 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3971	Brown Handle	10	50	22	**$89.50**
3971-Bla	Black Handle	10	50	22	**89.50**
3971-I	Ivory Handle	10	50	22	**99.50**
3971-L	Lock Type	10	50	22	**164.50**
3971-M	Momentary Contact	10	50	22	**199.50**
3971-HR	Rubber Handle	10	50	22	**96.50**
3971-SH	Steel Handle	10	50	22	**89.50**
3971-SR	Roller Handle	10	50	22	**94.50**

Three-Way

20 Amp., 125 Volts; 10 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3973	Brown Handle	2	10	5	**117.00**
3973-Bla	Black Handle	2	10	5	**117.00**
3973-I	Ivory Handle	2	10	5	**127.00**
3973-L	Lock Type	2	10	5	**192.00**
3973-M	Momentary Contact	2	10	5	**227.00**
3973-HR	Rubber Handle	2	10	5	**124.00**
3973-SH	Steel Handle	2	10	5	**117.00**
3973-SR	Roller Handle	2	10	5	**122.00**

Double-Pole

20 Amp., 125 Volts; 20 Amp., 250 Volts

Motor Control Rating—2 H.P., 115-230 Volts A.C.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3972	Brown Handle	2	10	5	**127.50**
3972-Bla	Black Handle	2	10	5	**127.50**
3972-I	Ivory Handle	2	10	5	**137.50**
3972-L	Lock Type	2	10	5	**202.50**
3972-M	Momentary Contact	2	10	5	**237.50**
3972-RH	Rubber Handle	2	10	5	**134.50**
3972-SH	Steel Handle	2	10	5	**127.50**
3972-SR	Roller Handle	2	10	5	**132.50**
3982*	Back Connected	2	10	6	**127.50**

Four-Way

10 Amp., 125 Volts; 5 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3974	Brown Handle	2	10	5	**424.00**
3974-Bla	Black Handle	2	10	5	**424.00**
3974-I	Ivory Handle	2	10	5	**434.00**
3974-L	Lock Type	2	10	5	**499.00**
3974-M	Momentary Contact	2	10	5	**534.00**
3974-RH	Rubber Handle	2	10	5	**431.00**
3974-SH	Steel Handle	2	10	5	**424.00**
3974-SR	Roller Handle	2	10	5	**429.00**

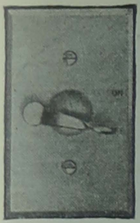
*No. 3982 for appliance use—2500 watts, 125 volts; 5000 watts, 250 volts. Sealed with compound which will not soften under heat.

The bonding terminals on No. 3982 are at the back of the switch to meet requirements of certain equipment installations.

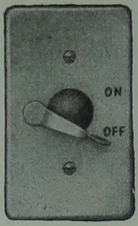
Dimensions of cups: 2 13/16x1¾x1½ inches deep.

BRYANT WEATHERPROOF SWITCHES

FOR OUTLET BOXES AND FS TYPE FITTINGS



No. 4421



No. 4431

For installations exposed to weather and dampness as on porches, garages, industrial plants, etc.

Brass plates, cadmium plated; provided with rubber mat. Depth of cup, 1$\frac{3}{32}$ inches.

Carton 2.

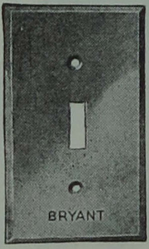
For Outlet Boxes		Amperes		Std. Pkg.	Pkg. Wt.	For "FS" Type Fittings	
Cat. No.	Price Per 100	125V.	250V.			Cat. No.	Price Per 100
Single-Pole							
4421	$174.00	10	5	10	7	4431	$195.50
4426	228.00	20	10	10	7	4436	249.50
Three-Point							
4423	196.50	10	5	10	7	4433	217.50
Double-Pole							
4422	228.00	10	10	10	7	4432	249.50
4425	266.50	20	10	10	7	4435	287.50
Four-Point							
4424	436.00	5	2	5	4	4434	457.00

BRYANT FLUSH PLATES FOR TUMBLER SWITCHES

N. E. C. Standard

Standard package, 100 gangs; carton, 10 gangs. S plates of the same material may be assorted in various finishes, thicknesses and gangs to make up carton and standard package quantities. No other assortment permitted.

Brass mounting screws are packed in the carton with each plate.



1-Gang

ONE HORIZONTAL ROW

Brush Brass				Spray Brass		
Cat. No.	No. of Gangs	Price Per 100	Pkg. Wt.	Cat. No.	No. of Gangs	Price Per 100
Solid Brass Plates						
OS11	1	$56.00	28	OS11-P	1	$54.50
OS12	2	112.00	24	OS12-P	2	109.00
OS13	3	168.00	20	OS13-P	3	163.50
Stamped Brass Plates—.060 Inch						
OS61	1	23.50	25	OS61-P	1	22.00
OS62	2	47.00	21	OS62-P	2	44.00
OS63	3	70.50	20	OS63-P	3	66.00
Stamped Brass Plates—*.040-Inch						
OS41	1	13.00	19	OS41-P	1	11.50
OS42	2	26.00	16	OS42-P	2	23.00
OS43	3	39.00	15	OS43-P	3	34.50

Tandem Plates—Solid Brass—One Vertical Row

Cat. No.	No. of Gangs	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
3792	2	5	50	24	$150.00
3793	3	3	30	22	225.00

BRYANT FLUSH PLATES

N. E. C. Standard

BLANK FLUSH PLATES

The standard finish of flush plates is brush brass, which will be furnished when no finish is specified. Perma finish is a durable colored lacquer that resembles brush brass.

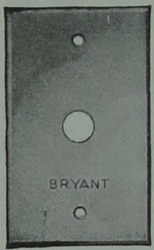
Cat. No.	Carton Gangs	Std.Pkg. Gangs	Wt.Lbs. Std. Pkg.	Price Per 100
OK61	10G	50G	13	$33.00

TELEPHONE PLATES

Telephone plate with single cord hole. One gang, stamped .060 inch brass.

Length 4½ inches; width 2¾ inches.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
OG61	10G	50G	12	$36.00



BRASS PLATE FOR 12-VOLT BELL PUSH BUTTON

Symbol T

One-gang, solid. Button is not furnished with No. OT11, see No. 3675. Diameter of center hole, ⅝-inch.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
OT11	10	50	20	$60.00

BELL PUSH BUTTON ONLY

12 Volts

For T plates. Button projects behind plate ⅞-inch and is ⅝-inch diameter. Standard finish of ring surrounding the button is brush brass.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
3675	10	50	1	$75.00

YOKE FOR MOUNTING K, G, T AND T3 PLATES

Has 3$\frac{9}{32}$-inch and 2⅜-inch screw hole spacings.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
H10	10	50	2	$7.50

The standard finish for brass plates is brush brass which will be furnished when no finish is specified.

The list price of Perma finish for any flush plate is **$1.50** list per 100 gangs less than the list price of a similar plate in brush brass finish.

Brass mounting screws, finished to match, are packed in the carton with each plate.

ATTACHING SCREWS

Mfrs. No.	Description	Carton	Std. Pkg.	Price Per 100
H751	Brass, to Match Plate....	20	100	$1.50

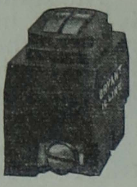
BRYANT INTERCHANGEABLE IL LINE

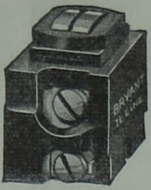
Brown Bakelite—N.E.C. Standard

ENCLOSED FLUSH TUMBLER SWITCHES

IL1311

IL1312


IL1311-L


IL1312-L

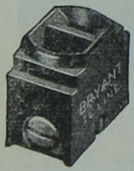
Dimensions of single-pole switch: Length, 1½ inches; width, ⅞ inch; depth, 1 3/32 inches; all other switches — length, 1⅝ inches; width, ⅞ inch; depth, 1 3/32 inches.

Cat. No.	Type	Amperes 125 Volts	Amperes 250 Volts	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1311	S-Pole	10	5	10	100	11	**$35.00**
IL1312	2-Pole	10	10	2	10	2	**89.50**
IL1313	3-Way	10	5	10	50	6	**57.50**
IL1314	4-Way	5	2	2	10	2	**180.00**
	Lock Type						
IL1311-L	S-Pole	10	5	10	100	11	**110.00**
IL1312-L	2-Pole	10	10	2	10	2	**164.50**
IL1313-L	3-Way	10	5	10	50	6	**132.50**
IL1314-L	4-Way	5	2	2	10	2	**255.00**
	Ivory Bakelite						
IL1411	S-Pole	10	5	10	50	6	**41.00**
IL1412	2-Way	10	10	2	10	2	**95.50**
IL1413	3-Way	10	5	10	30	4	**63.50**
IL1414	4-Way	5	2	2	10	2	**186.00**

Single-pole 15-ampere switches for special appliance application can be furnished. One No. 6000 key furnished with each lock switch.

CONVENIENCE OUTLET

15 Amp., 125 Volts; 10 Amp., 250 Volts



Length, 1 3/16 inches; width, ⅝ inch; depth, 1⅛ inches.

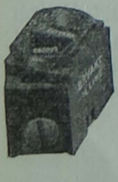
Cat. No.	Color	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1320	Brown	10	100	6	**$14.00**
IL1420	Ivory	10	100	7	**20.00**

ATTACHMENT PLUG CAPS

With 9/32-inch cord hole.

Cat. No.	Color	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
	Standard Caps				
IL1321	Brown	10	100	4	**$ 8.00**
IL1421	Ivory	10	50	4	**13.50**
	Polarized Caps				
IL1326	Brown	10	100	4	**9.00**
IL1426	Ivory	10	50	3	**15.00**
	Radio Caps				
IL1323	Brown	2	10	1	**13.50**
IL1423	Ivory	2	10	1	**19.00**

RADIO OUTLET



For antenna and ground connections. Length, 1 5/16 inches; width, ⅝ inch; depth, 1⅛ inches.

Cat. No.	Color	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1322	Brown	2	10	1	**$42.50**
IL1422	Ivory	2	10	1	**48.00**

Prices for white IL devices on another page. The correct style mounting strap is furnished without charge, packed with each Bryant IL plate.

BRYANT INTERCHANGEABLE IL LINE

Brown Bakelite—N.E.C. Standard

INSULATING ADAPTER

BRYANT
IL LINE
IL1327

JOHN C. BLAKE
IL1330

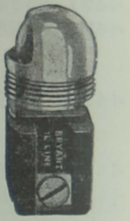
Designed to fit over the neck of outlets IL-1320 and IL-1341 and into the round opening (F Section) brass plate, thereby increasing the face diameter of the receptacle so that standard size attachment plug caps can be used.

Name plate is stainless steel frame.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1327	Insulating Adapter	10	50	4	**$11.00**
IL1330	Name Plate..........	10	30	¼	**16.50**

NIGHT LIGHT RECEPTACLES

75 Watts, 125 Volts

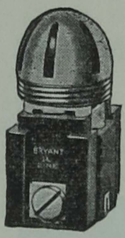


Body without hood: Length, 1¼ inches; width ⅞ inch; depth, 1 1/32 inches. With clear lamp.* Metal hood only: Diameter, ⅞ inch; height, ⅞ inch.

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
	With Chromium-Plated Reflector			
IL1339	10	30	4	**$95.50**
	With Brush Brass Reflector			
IL1339-B	10	30	4	**95.50**

PILOT LIGHT RECEPTACLES

75 Watts, 125 Volts



Dimensions body only: Length, 1¼ inches; width, ⅞ inch; depth 1 1/32 inches. With red lamp.* Metal hood only: Diameter, ⅞ inch; height, ⅞ inch.

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
	With Chromium-Plated Hood			
IL1340	10	30	4	**$95.50**
	With Brush Brass Hood			
IL1340-B	10	30	4	**95.50**

*For omission of lamp, add "X" to catalog number, and deduct $29.50 per 100 list.

HOOD AND REFLECTORS

IL1343

IL1352

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
	Chromium-Plated Hood			
IL1343	10	30	1	**$20.50**
	Brush Brass Hood			
IL1343-B	10	30	1	**20.50**
	Chromium-Plated Reflector			
IL1352	10	30	1	**20.50**
	Brush Brass Reflector			
IL1352-B	10	30	1	**20.50**

OUTLET FOR PILOT LIGHT

15 Amp., 125 V.; 10 Amp., 250 V.

With parallel slots.

Cat. No.	Color	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1341	Brown	10	30	4	**$24.00**
IL1441	Ivory	10	30	4	**30.00**

BELL PUSH AND BLANK INSERT

IL1344

IL1345

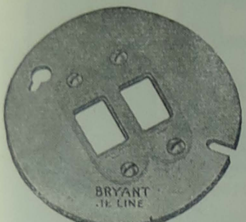
Bell push is for 6 to 12-volt circuits. Blank insert or cord hole is for wall plates.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1344	Pull Push	10	20	1	**$25.00**
IL1345	Insert	5	10	¼	**10.50**

BRYANT INTERCHANGABLE IL LINE

Brown Bakelite—N.E.C. Standard

METAL BOX COVERS


BRYANT
IL LINE

For mounting any one Bryant Interchangeable Device directly on a 3¼-inch outlet box, or any one or two devices on a 4-inch outlet box. Especially adapted for surface or exposed work. Cadmium-plated. Complete with necessary straps for installing.

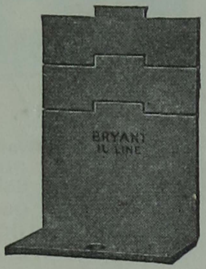
Cat. No.	Openings	Box Size	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1361	1	3¼	10	100	26	$13.50
IL1362	1	4	10	100	35	16.50
IL1363	2	4	10	50	16	21.50

METAL BOX DIVIDER

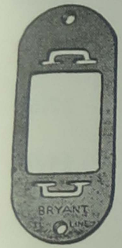
For radio outlet. Keeps antenna and ground wires separate from any power circuit entering the same box.

For 1½, 2 or 2½-inch switch boxes.

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1346	5	10	1	$28.00


BRYANT
IL LINE

APPLIANCE STRAP


BRYANT
IL LINE

For mounting single Bryant Interchangeable Devices in small spaces. Ideal for appliance applications.

Length, $2\frac{7}{32}$ inches; width, $\frac{29}{32}$ inch. Mounting screw holes spaced on $1\frac{31}{32}$-inch centers.

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1354	10	100	1¾	$3.50

MOUNTING STRAPS

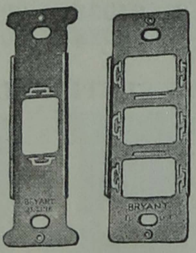
Packed with each Interchangeable plate. May, however, be ordered separately. Screw spacing, $3\frac{13}{32}$ inches; length, $4\frac{3}{32}$ inches.

With Single Vertical Opening

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1347	10	50	2½	$4.00

With 3 Horizontal Openings

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1348	10	50	3¼	4.00


BRYANT
IL LINE
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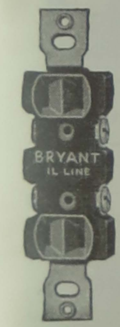
IL LINE


BRYANT
IL LINE

DUPLEX CONVENIENCE OUTLET

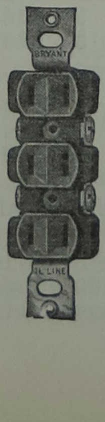
15 Amperes, 125 Volts
10 Amperes, 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL13202	Brown	10	100	22	$25.00
IL14202	Ivory	10	50	11	31.00

TRIPLEX CONVENIENCE OUTLET

15 Amperes, 125 Volts
10 Amperes, 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL13203	Brown	10	100	25	$29.00
IL14203	Ivory	10	50	13	35.00


BRYANT
IL LINE

BRYANT FLUSH DEVICES

INFORMATION REGARDING FLUSH PLATES

Plates to Fit FD and FS Condulet, Solid Only

When plates are specified Condulet dimensions, the extra charge will be **$22.50** list per 100 plates.

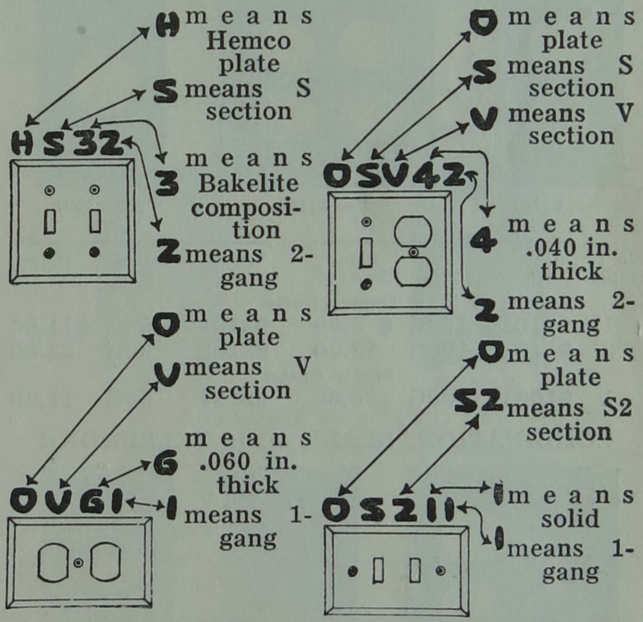
Plates of Special Dimensions and Spacings, Solid Only

Plates of special dimensions or spacings will be billed at **$10.50** per 100 square inches in addition to the price of the corresponding standard solid plate. The standard package quantity will be ten plates and the carton quantity two plates of one style and size. On quantity orders for identical plates the following list prices per 100 square inches will be added: 100-499 plates, **$9.45;** 500-999 plates, **$8.40;** 1000 and over, **$7.35.** When plates are other than rectangular in shape the area by which the price is determined will be the size of the smallest rectangular piece from which the specified plate can be cut.

No plates of special dimensions will be sold for less than the list price of a standard plate of the same kind for a similar purpose.

Plate Symbols

When the simple elements of this number system are learned it will be found easy to specify Bryant plates by catalog number.


HS32
H means Hemco plate
S means S section
3 means Bakelite composition
2 means 2-gang
OSV42
O means plate
S means S section
V means V section
4 means .040 in. thick
2 means 2-gang
OV61
O means plate
V means V section
6 means .060 in. thick
1 means 1-gang
OS211
O means plate
S2 means S2 section
1 means solid
1 means 1-gang

"–P" after any plate catalog number indicates that "Perma" finish is desired.

Combination Plates
(At Least Two Different Symbols and Not More Than One Horizontal Row)

Up to and including 3 gangs, combination plates, as described above, will be billed at the sum of the list prices shown on page listing Plate Sections. Above 3 gangs, add 25 per cent to the sum of the list prices. Carton, 2 plates. Standard package, 10 plates.

Tandem Plates—One Symbol Only

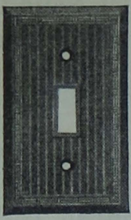
Up to and including 3 gangs, tandem plates, as described above, will be billed at the sum of the list prices shown on page listing Plate Sections, plus **$19.00** list per 100.

Tandem Combination Plates
(Two or More Horizontal Rows; Two or More Different Symbols)

Same additions as for tandem plates. Available in solid (.100-inch) metal only. Carton, 2 plates. Standard package, 10 plates.

BRYANT UNILINE PLATES

FLUSH SWITCH PLATES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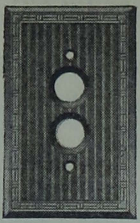
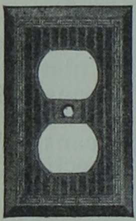

No. 91081

Tumbler Switch Plates

	Brown			Ivory		
No. of Gangs	Cat. No.	Std. Pkg.	Price Per 100	Cat. No.	Std. Pkg.	Price Per 100
1	91071	100G	$ 6.00	92071	50G	$11.00
2	91072	100G	12.00	92072	50G	22.00
3	91073	100G	18.00	92073	50G	33.00
4	91074	100G	24.00	92074	50G	44.00
5	91075	100G	96.50	92075	50G	125.00
6	91076	100G	116.00	92076	50G	150.00
Push Switch Plates						
1	91081	100G	6.00	92081	50G	11.00

CONVENIENCE OUTLET PLATES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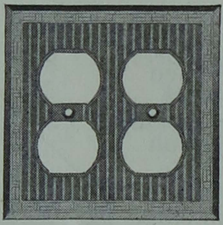
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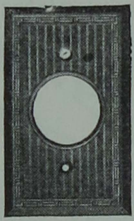
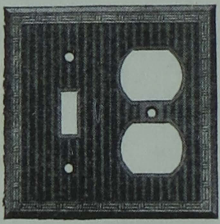

No. 91091

	Brown			Ivory		
No. of Gangs	Cat. No.	Std. Pkg.	Price Per 100	Cat. No.	Std. Pkg.	Price Per 100
Duplex Outlet						
1	91101	100G	$ 6.00	92101	50G	$11.00
2	91102	100G	12.00	92102	50G	22.00
Single Outlet						
1	91091	100G	6.00	92091	50G	11.00

COMBINATION, BLANK AND TELEPHONE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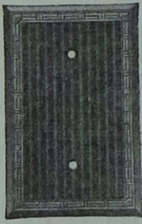

No. 91121

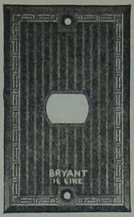
No. 91181

Combination Plates

	Brown			Ivory		
No. of Gangs	Cat. No.	Std. Pkg.	Price Per 100	Cat. No.	Std. Pkg.	Price Per 100
One Tumbler Switch and One Single Outlet						
2	91512	10	$12.00	92512	10	$22.00
One Tumbler Switch and One Duplex Outlet						
2	91532	10	12.00	92532	10	22.00
One Single and One Duplex Outlet						
2	91572	10	32.00	92572	10	47.00
Two Tumbler Switches and One Duplex Outlet						
3	91543	10	30.00	92543	10	45.00
Blank Plates						
1	91121	50G	6.00	92121	30G	11.00
2	91122	50G	47.00	92122	30G	59.00
One Gang Telephone Plate						
1	91181	50G	6.00	92181	30G	11.00

BRYANT UNILINE PLATES

FOR "IL" LINE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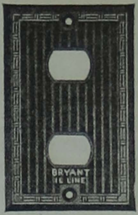
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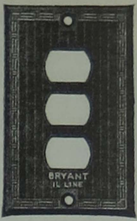
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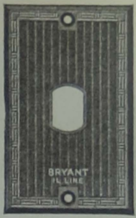
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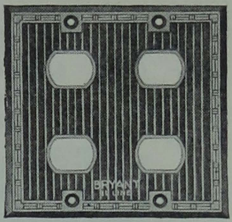
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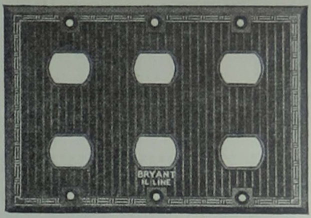
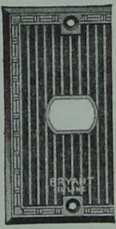

No. 91023

	Brown			Ivory		
No. of Gangs	Cat. No.	Std. Pkg.	Price Per 100	Cat. No.	Std. Pkg.	Price Per 100
One Opening (Horizontal)						
1	91011	100	$11.50	92011	100	$17.50
Two Openings						
1	91021	50	16.00	92021	50	22.00
Three Openings						
1	91031	30	16.00	92031	30	22.00
One Opening (Vertical)						
1	91041	100	11.50	92041	100	17.50
Four Openings						
2	91022	30	32.00	92022	30	44.00
Two Openings (Vertical)						
2	91042	50	22.50	92042	30	34.50
Two Openings (Horizontal)						
2	91012	50	22.50	92012	30	34.50
Six Openings						
2	91032	20	45.00	92032	20	57.00
3	91023	20	64.00	92023	20	82.00

SECTIONAL PLATES FOR "IL" LINE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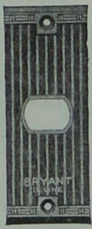
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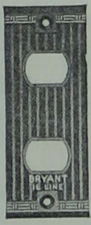
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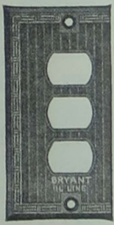

No. 91331

End Sections, Horizontal "IL" Openings

	Brown			Ivory		
No. of Open-ings	Cat. No.	Std. Pkg.	Price Per 100	Cat. No.	Std. Pkg.	Price Per 100
1	91311	50	$21.50	92311	50	$27.50
2	91321	50	21.50	92321	50	27.50
3	91331	30	21.50	92331	30	27.50
Center Sections, Horizontal "IL" Openings						
1	91411	50	21.50	92411	50	27.50
2	91421	50	21.50	92421	50	27.50
3	91431	30	21.50	92431	30	27.50

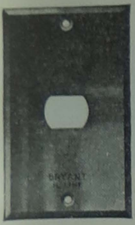
Uniline Plates also furnished in black bakelite. Universal number series is 93000; For example, 91041 in black would be 93041.

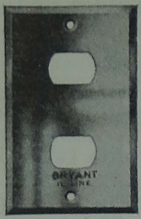
Standard package weights average 10 pounds per 100 gangs. All carton quantities 10 gangs, except combination plates on which carton is 2 plates.

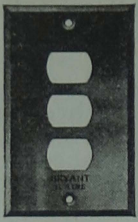
BRYANT INTERCHANGEABLE UNIT DEVICE PLATES

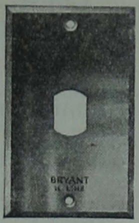
BRASS PLATES

Brush and Spray Finishes


IL1671-A


IL1671-B


IL1671-C


IL1671-G

No. of Gangs	Car-ton	Std. Pkg.	Pkg. Wt.	Brush Brass Cat. No.	Brush Brass Price Per 100	Spray Brass Cat. No.	Spray Brass Price Per 100
Single Opening (Horizontal)							
				.040-Inch—Stamped			
				IL—		ILL—	
1	10	100	24	1771-A	$13.00	1771-A	$11.50
2	2	10	8	1772-2A	26.00	1772-2A	23.00
3	2	10	7	1773-3A	39.00	1773-3A	34.50
				.060-Inch—Stamped			
1	10	100	36	1671-A	23.50	1671-A	22.00
2	2	10	7	1672-2A	47.00	1672-2A	44.00
3	2	10	10	1673-3A	70.50	1673-3A	66.00
Two Openings							
				.040-Inch—Stamped			
1	10	50	12	1771-B	17.50	1771-B	16.00
2	2	10	6	1772-2B	35.00	1772-2B	32.00
3	2	10	5	1773-3B	52.50	1773-3B	48.00
				.060-Inch—Stamped			
1	10	50	18	1671-B	28.50	1671-B	27.00
2	2	10	7	1672-2B	57.00	1672-2B	54.00
3	2	10	8	1673-3B	85.50	1673-3B	81.00
Three Openings							
				.040-Inch—Stamped			
1	10	30	7	1771-C	17.50	1771-C	16.00
2	2	10	5	1772-2C	35.00	1772-2C	32.00
3	2	10	4	1773-3C	52.50	1773-3C	48.00
				.060-Inch—Stamped			
1	10	30	12	1671-C	28.50	1671-C	27.00
2	2	10	6	1672-2C	57.00	1672-2C	54.00
3	2	10	7	1673-3C	85.50	1673-3C	81.00
Single Opening (Vertical)							
				.040-Inch—Stamped			
1	10	100	23	1771-G	13.00	1771-G	11.50
2	2	10	7	1772-2G	26.00	1772-2G	23.00
3	2	10	7	1773-3G	39.00	1773-3G	34.50
				.060-Inch—Stamped			
1	10	100	36	1671-G	23.50	1671-G	22.00
2	2	10	7	1672-2G	47.00	1672-2G	44.00
3	2	10	10	1673-3G	70.50	1673-3G	66.00

BLANK PLATES—STAMPED

IL1671-J

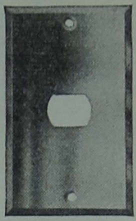
Screw spacing, 3 13/16 inches.

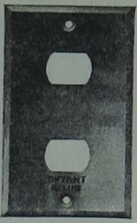
Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
Brush Brass				
One-Gang .040-Inch—Stamped				
IL1771-J	10	50	12	$27.00
One-Gang .060-Inch—Stamped				
IL1671-J	10	50	25	33.00
Spray Brass				
One-Gang .040-Inch—Stamped				
ILL1771-J	10	50	12	25.50
One-Gang .060-Inch—Stamped				
ILL1671-J	10	50	25	31.50

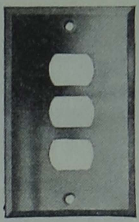
BRYANT INTERCHANGEABLE UNIT DEVICE PLATES

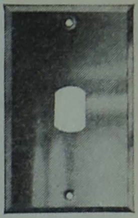
STAINLESS STEEL

Chrome-X Satin Finish—.040-Inch Stamped


IL1791-A


IL1791-B

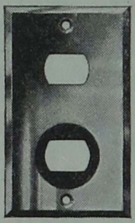

IL1791-C

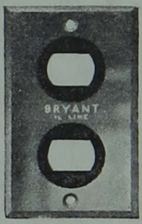

IL1791-G

Cat. No.	No. of Gangs	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
Single Opening (Horizontal)					
IL1791-A	1	10	100	22	$23.00
IL1792-2A	2	2	10	4	54.00
IL1793-3A	3	2	10	5	81.00
Two Openings					
IL1791-B	1	10	50	11	24.00
IL1792-2B	2	2	10	4	78.00
IL1793-3B	3	2	10	5	102.00
Three Openings					
IL1791-C	1	10	30	7	24.00
IL1792-2C	2	2	10	3	78.00
IL1793-3C	3	2	10	4	102.00
Single Opening (Vertical)					
IL1791-G	1	10	100	19	23.00
IL1792-2G	2	2	10	4	54.00
IL1793-3G	3	2	10	5	81.00

PLATES WITH INSULATING ADAPTERS

Two Horizontal Openings


IL1791-R



IL1671-V

STAINLESS STEEL

.040-Inch—Chrome-X—Stamped

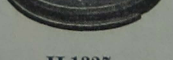
Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1791-R	One brown adapter	2	10	3	$24.00
IL1791-RI	One ivory adapter	2	10	3	30.00
IL1791-V	Two brown adapters	2	10	3	24.00
IL1791-VI	Two ivory adapters	2	10	3	36.00

BRASS PLATES—STAMPED

No. of Adapters	Pkg. Wt.	Brush Brass Cat. No.	Brush Brass Price Per 100	Spray Brass Cat. No.	Spray Brass Price Per 100
.040-Inch					
1 Brown	3	IL1771-R	$17.50	ILL1771-R	$16.00
1 Ivory	3	IL1771-RI	23.50	ILL1771-RI	22.00
2 Brown	3	IL1771-V	17.50	ILL1771-V	16.00
2 Ivory	3	IL1771-VI	29.50	ILL1771-V1	28.00
.060-Inch					
1 Brown	3	IL1671-R	28.50	ILL1671-R	27.00
1 Ivory	3	IL1671-RI	34.50	ILL1671-RI	33.00
2 Brown	3	IL1671-V	28.50	ILL1671-V	27.00
2 Ivory	3	IL1671-VI	40.50	ILL1671-VI	39.00

Carton, 2; standard package, 10.

BAKELITE INSULATING ADAPTER



IL1327

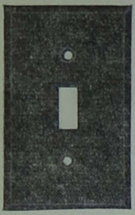
Fits standard single outlet openings in metal plates. Permits use of "IL" outlets and "IL" caps.

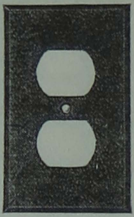
Cat. No.	Color	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
IL1327	Brown	10	50	4	$11.00
IL1427	Ivory	10	30	3	17.00

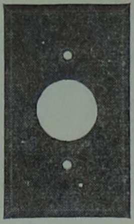
BRYANT METAL FLUSH PLATES

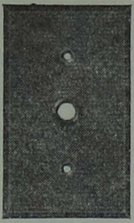
ENAMELED STEEL

Brown-X and Ivory-X—.040-Inch Stamped


OS71-BX


OV71-BX


OF71-BX

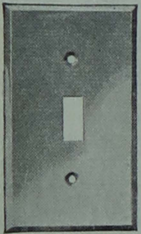

OG71-BX

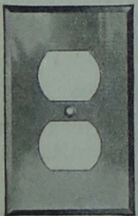
Tumbler Switch

				BROWN-X		IVORY-X	
No. of Gangs	Carton	Std. Pkg.	Pkg. Wt.	Cat. No.	Price Per 100	Cat. No.	Price Per 100
1	10G	100G	14	OS71-BX	$6	OS71-IX	$9
2	10G	100G	14	OS72-BX	12	OS72-IX	18
3	10G	100G	14	OS73-BX	18	OS73-IX	27
4	10G	100G	14	OS74-BX	36	OS74-IX	52
5	10G	100G	14	OS75-BX	45	OS75-IX	65
6	10G	100G	14	OS76-BX	54	OS76-IX	78
Duplex Convenience Outlet							
1	10G	100G	14	OV71-BX	6	OV71-IX	9
2	10G	100G	14	OV72-BX	12	OV72-IX	18
Single Convenience Outlet							
1	10G	100G	14	OF71-BX	6	OF71-IX	9
Combination Plates							
One Tumbler Switch and One Single Outlet							
2	2	10	2	OSF72-BX	12	OSF72-IX	18
One Tumbler Switch and One Duplex Outlet							
2	2	10	2	OSV72-BX	12	OSV72-IX	18
Two Tumbler Switches and One Duplex Outlet							
2	2	10	3	OSSV73-BX	18	OSSV73-IX	27
Blank and Telephone Plates							
Single Gang Blank Plate							
1	10	50	7	OK71-BX	13	OK71-IX	16
Single Gang Telephone Plate							
1	10	50	7	OG71-BX	14	OG71-IX	17

STAINLESS STEEL

Chrome-X—.404-Inch Stamped


OS71-CX


OV71-CX

Tumbler Switch Plates

Cat. No.	No. of Gangs	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
OS71-CX	1	10G	100G	14	$20.00
OS72-CX	2	10G	100G	14	54.00
OS73-CX	3	10G	100G	14	81.00
OS74-CX	4	10G	100G	14	108.00
OS75-CX	5	10G	100G	14	135.00
OS76-CX	6	10G	100G	14	162.00
Duplex Convenience Outlet					
OV71-CX	1	10G	100G	14	20.00
OV72-CX	2	10G	100G	14	54.00
Combination Plates					
One Tumbler Switch and One Single Outlet					
OSF72-CX	2	2	10	2	54.00
One Tumbler Switch and One Duplex Outlet					
OSV72-CX	2	2	10	2	54.00
Two Tumbler Switches and One Duplex Outlet					
OSSV72-CX	3	2	10	3	81.00
Blank and Telephone Plates					
Single Blank Plate					
OK71-CX	1	10	50	7	27.00
Telephone Plate					
OG71-CX	1	10	50	7	28.00

BRYANT FLUSH PLATES

INFORMATION REGARDING METAL FLUSH PLATES

Special Metals

Add the following list prices of the corresponding plates in brush brass.

Description	Per 100 Gangs
Aluminum, Brushed, in Solid (.100-Inch) or .060-Inch Thick	$23.00
Aluminum, Polished, in Solid (.100-Inch) or .060-Inch Thick	36.50
Bronze (Genuine) Brushed in Solid (.100-Inch), .060 or .040-Inch Thick	15.00
Bronze (Genuine) Polished in Solid (.100-Inch), .060 or .040-Inch Thick	30.00
Nickel Silver Polished or Brushed, in Solid (.100-Inch), .060 or .040 Thick	37.50

Special Finishes

When applied to single gang plates or first gang of multiple gang or combination plates, add the following to list prices of corresponding plate in brush brass finish:

Finish	Per 100 Gangs
Barff, Bauer, Imitation (Lacquer)	$15.00
Brass, Sand Blast, Antique	45.00
Brass, Sand Blast, Brush	37.50
Brass, Flemish	22.50
Brass, Lemon	15.00
Brass, Oxidized	22.50
Brass, Polished	15.00
Bronze, Brush	22.50
Bronze, Japanese, Dark	22.50
Bronze, Polished	22.50
Bronze, Statuary, Light	22.50
Black Lacquer	15.00
Chromium, Dull	45.00
Chromium, Polished	45.00
Copper, Antique	30.00
Copper, Mottled	22.50
Copper, Brush	22.50
Copper, Oxidized	22.50
Copper, Polished	22.50
Enamel, White Imitation (Lacquer)	15.00
Gunmetal	22.50
Ivory (Lacquer)	22.50
Nickel, Dull	22.50
Nickel, Polished	22.50
Silver, Butlers (Brushed)	67.00
Silver, Satin	67.00
Silver, Oxidized	67.00
Silver, Polished	67.00
Telephone Red	15.00
Bakelite (Lacquer)	15.00
Verde Antique (Lacquer)	15.00

For each additional gang over one in multiple gang and combination plates, add **$15.00** list to the list price of the first gang.

On quantity orders, the extra charge for above listed special finishes on flush plates will be reduced as follows:

100-499 gangs, 10 per cent; 500-999 gangs, 20; 1000 gangs, 50.

For ivory or white enamel finish on Bakelite plates, add the same extras as for brass plates.

Any brass plate can be supplied in "Perma" finish (suffix P to catalog number) for **$1.50** list per 100 gangs less than the price of the same plate in brush brass finish.

BRYANT SURFACE TUMBLER SWITCHES

N. E. C. Standard

BAKELITE COVER—PORCELAIN BASE

HIGH GRADE

Dimensions: No. 3921 and No. 3923—Height over cover, 1 7/16 inches; supporting screw spacing, 1⅜ inches. Nos. 3911 to 3914—Height over cover, 1 9/16 inches; supporting screw spacing, 1¾ inches.

With Solid, 2-Inch Base

Cat. No.	Description	Amps. 125 Volts	Amps. 250 Volts	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3921	S.P., Ind.	5	3	10	100	24	$38.50
3923	3-Point	5	3	10	100	25	72.50

With Solid, 2 7/16-Inch Base

Cat. No.	Description	Amps. 125 Volts	Amps. 250 Volts	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3911	S.P., Ind.	10	5	10	100	37	89.50
3912	D.P., Ind.	10	10	10	100	40	127.50
3913	3-Point	10	5	10	50	18	127.50
3914	4-Point	5	2	2	10	4	314.00

COMPETITIVE GRADE

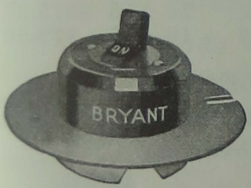
Height over cover, 1 9/32 inches; supporting screw spacing, 1⅜ inches.

With Slotted, 2-Inch Base

Cat. No.	Description	Amps. 125 Volts	Amps. 250 Volts	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H11	S.P., Ind.	6	3	10	50	11	$16.00
H13	3-Point	5	2	10	50	11	22.80
	With Solid, 2-Inch Base						
H21	S.P., Ind.	6	3	10	50	12	16.00
H23	3-Point	5	2	10	50	12	22.80

ON METAL BOX COVERS—CADMIUM PLATED HIGH GRADE

5 Amp., 125 Volts; 3 Amp., 250 Volts



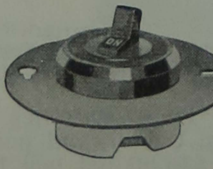
Cat. No.	Size Inches	Carton	Std. Pkg.	Price Per 100
	Single Pole			
3931	3¼	5	50	$46.00
3941	4	5	50	47.00
	Three-Point			
3933	3¼	5	50	79.50
3943	4	5	50	83.00

Diameter of base, 2 inches; height over cover, ⅞ inch; height over handle, 1 7/32 inches.

COMPETITIVE TYPE

6 Amp., 125 Volts; 3 Amp., 250 Volts

Single-pole. Bakelite cover porcelain base.



Cat. No.	Size Inches	Carton	Std. Pkg.	Price Per 100
H31	3¼	10	50	$20.00
H41	4	10	50	21.00

BRYANT SURFACE SWITCHES

N. E. C. Standard

SINGLE-POLE SURFACE ROTARY SWITCHES

No. 2000

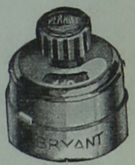
Height over cover, 1 13/32 inches; supporting screw spacing, 1⅜ inches. Nos. 2220 and 2035 can be supplied, on special order, at no advance in price, on a base 1 13/16 inches in diameter.

6 Amperes, 125 Volts; 3 Amperes 250 Volts

With Black Bakelite Covers, 2-Inch Porcelain Base

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2220	Solid	10	100	25	$38.50
2000	Slotted	10	100	25	38.50
2035	Solid, Indicating	10	100	25	45.00
2047	Slotted, Indicating..	10	100	25	45.00

Height over cover, 1 17/32 inches. Supporting screw spacing, 1⅜ inches.



No. 2430

6 Amperes, 125 Volts; 3 Amperes, 250 Volts

With Long Metal Cover, 1 29/32-Inch Diameter Porcelain Base

Height over cover, 1 17/32 inches. Supporting screw spacing, 1⅜ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2430	Solid, Indicating	10	100	25	$60.50

6 Amperes, 125 Volts; 3 Amperes, 250 Volts

With Metal Cover, 2¼-Inch Porcelain Base

Height over cover, 1 13/32 inches. Supporting screw spacing, 1½ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2255	Slotted, Indicating..	10	100	33	$60.50

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

With Bakelite Covers, 2 7/16-Inch Porcelain Base

Height over cover, 1 9/16 inches. Supporting screw spacing, 1¾ inches. No. 2036 can be supplied, on special order, at no advance in price, on a base 2¼ inches in diameter, which is the diameter of the metal cover.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2036	Solid, Indicating	10	100	36	$89.50
2048	Slotted, Indicating..	10	100	36	89.50

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

With Bakelite Cover, 2½-Inch Composition Base

Height over cover, 1⅝ inches. Supporting screw spacing, 1¾ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2756	Solid, Indicating	10	30	9½	$117.00

20 Amperes, 125 Volts; 10 Amperes, 250 Volts

With Metal Covers, 3 1/32-Inch Porcelain Bases

These switches can be used for inductive loads. Height over cover, 1 23/32 inches. Supporting screw spacing, 2 3/16 inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2833	Solid, Indicating	2	10	6	$165.50
2834	Slotted, Indicating..	2	10	6	165.50

BRYANT SURFACE SWITCHES

N. E. C. Standard

DOUBLE-POLE SURFACE ROTARY SWITCHES

5 Amperes, 125 Volts—5 Amperes, 250 Volts

With Long Metal Cover

The metal cover extends over and covers the porcelain base.

Height over cover, 1 17/32 inches; supporting screw spacings, 1⅜ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2618	Solid, Indicating	10	100	17	**$108.50**

10 Amperes, 125 Volts—5 Amperes, 250 Volts

With Metal Covers—2-Inch Porcelain Bases

Height over cover, 1 9/16 inches; supporting screw spacings, 1⅜ inches.

No. 2393 can be furnished, at no advance in price, on base 1 13/16 inches in diameter.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2393	Solid, Indicating	10	100	29	**$106.00**
2394	Slotted, Indicating..	10	100	29	**106.00**

10 Amperes, 125 Volts—10 Amperes, 250 Volts

With Bakelite Cover—2½-Inch Composition Base

Height over cover, 1⅝ inches; supporting screw spacings, 1¾ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2766	Solid, Indicating	2	10	3½	**$146.50**

10 Amperes, 125 Volts—10 Amperes, 250 Volts

With Bakelite Covers—2 7/16-Inch Porcelain Bases

Height over cover, 1 9/16 inches; supporting screw spacings, 1¾ inches.

No. 2038 can be supplied, at no advance in price, on a base 2¼ inches in diameter.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2038	Solid, Indicating	10	100	37	**$127.50**
2050	Slotted, Indicating..	10	100	37	**127.50**

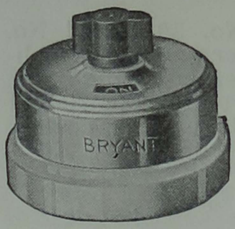
BRYANT SURFACE SWITCHES

N. E. C. Standard

DOUBLE-POLE SURFACE ROTARY SWITCHES

20 Amperes, 125 Volts—20 Amperes, 250 Volts

With Metal Covers—3 1/32-Inch Porcelain Bases



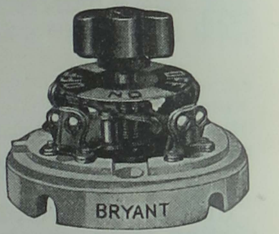
Height over cover, 1 23/32 inches; supporting screw spacings, 2 3/16 inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
***2040**	Solid, Indicating	2	30	18	**$248.50**
***2052**	Slotted, Indicating..	2	30	18	**248.50**

30 Amperes, 125 Volts—30 Amperes, 250 Volts

With Metal Covers—3 9/16-Inch Porcelain Bases

Height over cover, 1 15/16 inches; screw spacings, 2 9/16 inches. Holes are elongated to provide also 2¾ inch spacing for attachment to 3¼ inch outlet boxes.

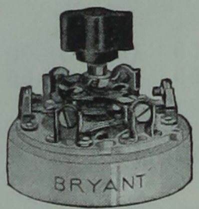


Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
***2042**	Solid, Indicating	2	30	31	**$297.00**
***2054**	Slotted, Indicating..	2	30	31	**297.00**

DOUBLE POLE—DOUBLE THROW

20 Amperes, 125 Volts—10 Amperes, 250 Volts

With Bakelite Covers—Porcelain Bases



With porcelain base and composition handle operating, 1, off; 2, off. Height over cover, 1 29/32 inches. Supporting screw spacings, 2 1/32 inches.

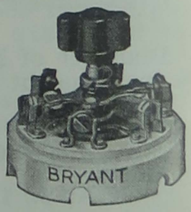
Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2613	Solid, Indicating	2	10	5	**$375.50**
2614	Slotted, Indicating....	2	10	5	**375.50**

TRIPLE POLE

20 Amperes, 125 Volts—10 Amperes, 250 Volts

With Bakelite Covers—Porcelain Bases

With porcelain base and No. 2779 composition handle. Diameter base, 2 11/16 inches; height over cover, 1 29/32 inches. Supporting screw spacings, 2 1/32 inches.



Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2046	Solid, Indicating	2	10	5	**$331.00**
2634	Slotted, Indicating....	2	10	5	**331.00**

*These switches can be furnished with porcelain covers and porcelain handles at an addition of **$16.00** list per 100 devices.

BRYANT SURFACE SWITCHES

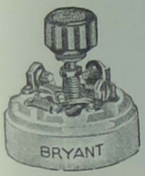
N.E.C. Standard

3-POINT SURFACE ROTARY SWITCHES

With No. 2777 Round Composition Handles

3 Amperes, 125 Volts—1 Ampere, 250 Volts

With Bakelite Covers—Porcelain Bases

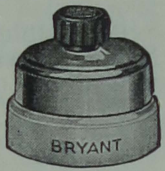


With No. 2777 composition handle. Diameter base, 2 inches; height over cover, $1\frac{13}{32}$ inches; height over handle, $1\frac{15}{16}$ inches. Supporting screw spacings, 1⅜ inches. No. 2455 can be supplied, at no advance in price, on a base $1\frac{13}{16}$ inches in diameter.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2455	Solid	10	100	25	**$72.50**
2456	Slotted	10	100	25	**72.50**

6 Amperes, 125 Volts—3 Amperes, 250 Volts

With Metal Covers—Porcelain Bases

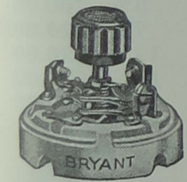


Diameter base, 2¼ inches; height over cover, $1\frac{13}{32}$ inches; height over handle, 2 inches; supporting screw spacings, 1½ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2175	Solid	10	100	31	**$85.00**
2027	Slotted	10	100	31	**85.00**

10 Amperes, 125 Volts—5 Amperes, 250 Volts

With Bakelite Covers—Porcelain Bases



Diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{9}{16}$ inches; height over handle, 2¼ inches. Supporting screw spacings, 1¾ inches.

No. 2176 can be supplied, at no advance in prices, on a base 2¼ inches.

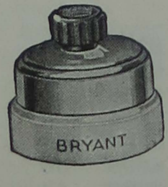
Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2176	Solid	10	100	18	**$127.50**
2030	Slotted	10	50	18	**127.50**

4-POINT SURFACE ROTARY SWITCHES

5 Amperes, 125 Volts—2 Amperes, 250 Volts

With Bakelite Covers—Porcelain Bases

Four-point switches are used in connection with two 3-point switches where current is to be controlled from any one of more than 2 points. A 4-point switch is installed between the 3-point switches at each additional point. 4-point switches can also be used individually as pole-changing switches.



Diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{9}{16}$ inches; height over handle, $2\frac{3}{32}$ inches. Supporting screw spacings, 1¾ inches. No. 2183 can be supplied at no advance in price on base 2¼ inches diameter.

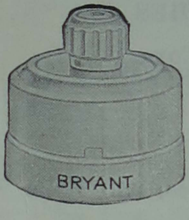
Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2183	Solid	10	30	11	**$270.50**
2033	Slotted	10	30	11	**270.50**

BRYANT SURFACE SWITCHES

N. E. C. Standard

ALL-PORCELAIN SURFACE ROTARY SWITCHES

With No. 2781 Round Porcelain Handle



No. 2601

*Diameter base, 2 inches; height over cover, $1\frac{9}{16}$ inches; height over handle, $2\frac{5}{16}$ inches. Supporting screw spacings, 1⅜ inches.

‡Diameter base, 2½ inches; height over cover, 1⅝ inches; height over handle, 2⅜ inches. Supporting screw spacings, 1¾ inches.

Single-Pole

6 Amperes, 125 Volts—3 Amperes, 250 Volts

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2601	Solid*	2	100	40	**$56.00**
2602	Slotted*	2	100	40	**56.00**
2603	Solid, Ind.*	2	100	40	**60.00**
2604	Slotted, Ind.*	2	100	40	**60.00**
	10 Amperes, 125 Volts—5 Amperes, 250 Volts				
2435	Solid, Ind.‡	2	30	16	**104.00**
2754	Slotted, Ind.‡	2	30	16	**104.00**

Double Pole

10 Amperes, 125 Volts—5 Amperes, 250 Volts

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2609	Solid, Ind.*	2	10	4	**112.50**
2610	Slotted, Ind.*	2	10	4	**112.50**
	10 Amperes, 125 Volts—10 Amperes, 250 Volts				
2438	Solid, Ind.‡	2	10	5	**140.00**
2764	Slotted, Ind.‡	2	10	5	**140.00**

Three-Point

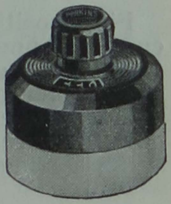
5 Amperes, 125 Volts—3 Amperes, 250 Volts

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2605	Solid*	2	10	4	**78.50**
2606	Slotted*	2	10	4	**78.50**

ELECTROLIER SURFACE ROTARY SWITCHES

With Bakelite Covers and No. 2777 Handles

10 Amperes, 125 Volts
5 Amperes, 250 Volts



*Diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{9}{16}$ inches; Supporting screw spacing, 1¾ in- height over handle, $2\frac{3}{32}$ inches. ches.

‡Diameter base, 2¼ inches; other specifications same as above.

2-Circuit Switches

Operating 1, 2 1 and 2, Off

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2188	Solid, Ind.*	2	10	3	**$165.50**
2074	Slotted, Ind.*	2	10	3	**165.50**
	Operating 1, 1 and 2, Off				
2662	Solid, Ind.‡	2	10	3	**165.50**

3-Circuit Switches

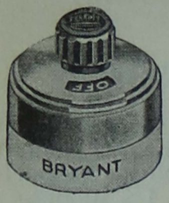
Operating 1, 1 and 2, 1 and 2 and 3, Off

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2187	Solid, Ind.*	2	10	3¾	**165.50**
2072	Slotted, Ind.*	2	10	3¾	**165.50**

Nos. 2187 and 2188 can be supplied, at no advance in price, on base 2¼ inches in diameter.

BRYANT SURFACE SWITCHES

N.E.C. Standard



No. 2403

ELECTROLIER AND MOTOR CONTROL SURFACE ROTARY SWITCHES

With Metal Covers and No. 2777 Handles

6 Amperes, 125 Volts—3 Amperes, 250 Volts

2-Speed, Operating 1, 2, Off

First position, circuit 1 on; second position, circuit 1 off and circuit 2 on; third position, all circuits off.

Diameter porcelain base, $1\frac{13}{16}$ inches.
Height over cover, $1\frac{13}{32}$ inches.
Height over handle, $1\frac{29}{32}$ inches.
Supporting screw spacing, 1⅜ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2403	Solid, Indicating	2	10	2	**$119.00**

10 Amperes, 125 Volts—5 Amperes, 250 Volts

2-Speed, Operating 1, 2, Off

Bakelite Covers

First position, circuit 1 on; second position, circuit 1 off and circuit 2 on; third position, all circuits off.

Diameter porcelain base, 2¼ inches.
Height over cover, $1\frac{9}{16}$ inches.
Height over handle, $2\frac{3}{32}$ inches.
Supporting screw spacing, 1¾ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2485	Solid, Indicating	2	10	3	**$165.50**

3-Speed, Operating 1, 2, 3, Off

First position, circuit 1 on; second position, circuit 1 off and circuit 2 on; third position, circuits 1 and 2 off, circuit 3 on; all circuits off.

Diameter porcelain base, 2¼ inches.
Height over cover, $1\frac{9}{16}$ inches.
Height over handle, $2\frac{3}{32}$ inches.
Supporting screw spacing, $1\frac{19}{32}$ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2385	Solid, Indicating	2	10	3	**$142.50**

On $2\frac{7}{16}$-Inch Porcelain Base

Height over cover, $1\frac{9}{16}$ inches.
Height over handle, $2\frac{3}{32}$ inches.
Supporting screw spacing, 1¾ inches.

No. 2666 can be supplied, on special order, on a base 2¼ inches in diameter, which is the diameter of the metal cover.

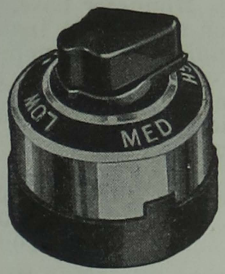
Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2666	Solid, Indicating	2	10	3¾	**$165.50**
2667	Slotted, Indicating	2	10	3¾	**165.50**

BRYANT HEATER AND RANGE SWITCHES

N.E.C. Standard

SURFACE HEATER SWITCHES

125-250 Volts



With 6200 Series with Angle Cover

Reversible rotation, with indicating handle. Nickel silver angle cover with raised polished indications on japanned black background, solid base.

Packed 2 in a carton, standard package, 10.

Single-Pole

Series Parallel, 3-Heat—Operating High, Medium, Low, Off

Mfrs. No.	Amperes 125 Volts	Amperes 250 Volts	Diam. Base In.	Mounting Screw Centers	Pkg. Wt.	Price Per 100
6249	6	3	$2\frac{1}{32}$	$1\frac{7}{16}$ to 1½	4	**$160.00**
6259‡	10	5	$2\frac{3}{16}$	$1\frac{7}{16}$ to 1½	4¼	**180.00**
6269‡	15	7½	2½	$1\frac{21}{32}$ to 1¾	5¾	**200.00**
6279‡	20	10	$2\frac{13}{16}$	$1\frac{21}{32}$ to 1¾	7¾	**220.00**
6289‡	30	15	$3\frac{5}{16}$	$2\frac{1}{16}$ to $2\frac{3}{16}$	13	**320.00**
6299	36	18	3⅝	2⅝ to 2¾	16	**400.00**
6209	42	21	4	2⅝ to 2¾	19	**500.00**

Operating On and Off

Mfrs. No.	Amperes 125 Volts	Amperes 250 Volts	Diam. Base In.	Mounting Screw Centers	Pkg. Wt.	Price Per 100
6247	6	3	$2\frac{1}{32}$	$1\frac{7}{16}$ to 1½	3¾	**120.00**
6257	10	5	$2\frac{3}{16}$	$1\frac{7}{16}$ to 1½	4	**160.00**
6267	15	7½	2½	$1\frac{21}{32}$ to 1¾	6	**180.00**
6277	20	10	$2\frac{13}{16}$	$1\frac{21}{32}$ to 1¾	7¼	**220.00**
6287	30	15	$3\frac{5}{16}$	$2\frac{1}{16}$ to $2\frac{3}{16}$	14	**300.00**
6297	36	18	3⅝	2⅝ to 2¾	16	**360.00**
6207	42	21	4	2⅝ to 2¾	16	**430.00**

Double-Pole

Series Parallel, 3-Heat—Operating High, Medium, Low, Off

Mfrs. No.	Amperes 125 Volts	Amperes 250 Volts	Diam. Base In.	Mounting Screw Centers	Pkg. Wt.	Price Per 100
6258	10	5	$2\frac{13}{16}$	$1\frac{7}{16}$ to 1½	4¼	**200.00**
6278‡	20	10	$2\frac{13}{16}$	$1\frac{21}{32}$ to 1¾	8	**260.00**
6288‡	30	15	$3\frac{5}{16}$	$2\frac{1}{16}$ to $2\frac{3}{16}$	13	**360.00**
6298	36	18	3⅝	2⅝ to 2¾	17	**520.00**
6208	42	21	4	2⅝ to 2¾	19	**620.00**

Operating On and Off

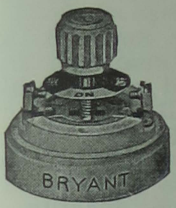
Mfrs. No.	Amperes 125 Volts	Amperes 250 Volts	Diam. Base In.	Mounting Screw Centers	Pkg. Wt.	Price Per 100
6246	6	3	$2\frac{1}{32}$	$1\frac{7}{16}$ to 1½	4	**160.00**
6256	10	5	$2\frac{3}{16}$	$1\frac{7}{16}$ to 1½	4¼	**180.00**
6266	15	7½	2½	$1\frac{21}{32}$ to 1¾	5½	**200.00**
6276	20	10	$2\frac{13}{16}$	$1\frac{21}{32}$ to 1¾	7½	**220.00**
6286	30	15	$3\frac{5}{16}$	$2\frac{1}{16}$ to $2\frac{3}{16}$	13	**320.00**
6296	36	18	3⅝	2⅝ to 2¾	17	**400.00**
6206	42	21	4	2⅝ to 2¾	18	**500.00**

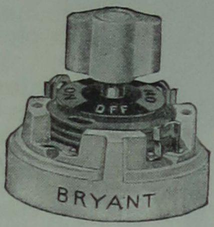
Templus covers may be furnished at no advance in price, suffix B.

BRYANT EXPULSION TYPE SURFACE SWITCHES

N. E. C. Standard

FOR INDUCTIVE LOADS AND ELECTRIC RAILWAY CIRCUITS


No. 2049


No. 2060

SINGLE POLE TYPES

10 Amperes, 250 Volts—5 Amperes, 600 Volts

Bakelite Covers

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2049	Solid, Ind.	2	50	20	**$125.50**

Outside diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{9}{16}$ inches; over handle, $2\frac{5}{16}$ inches. Holes for supporting screws spaced 1¾ inches.

20 Amperes, 250 Volts—10 Amperes, 600 Volts

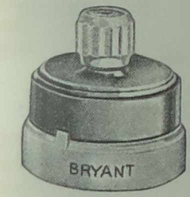
Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2060	Solid, In.	2	50	40	**278.00**

Outside diameter base, $3\frac{1}{32}$ inches; height over cover, 1¾ inches; over handle, $2\frac{23}{32}$ inches. Supporting screw spacings, $2\frac{3}{16}$ inches.

30 Amperes, 250 Volts—20 Amperes, 600 Volts

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2303	Solid, Ind.	2	50	37	**326.50**

Outside diameter base, $3\frac{9}{16}$ inches; height over cover, $1\frac{15}{16}$ inches; over handle, 2⅞ inches. Supporting screw spacings, $2\frac{9}{16}$ inches.


No. 2721

FOUR-POINT TYPE

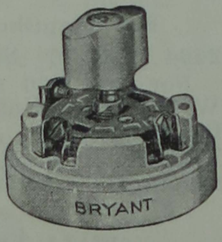
20 Amperes, 250 Volts
10 Amperes, 600 Volts

Outside diameter base, $3\frac{1}{32}$ inches; height over cover, 1¾ inches; over handle, $2\frac{23}{32}$ inches. Supporting screw spacings, $2\frac{3}{16}$ inches.

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
*2721	Solid	10	20	16	**$295.00**

TWO CIRCUIT

20 Amperes, 250 Volts
10 Amperes, 600 Volts


No. 2411

These switches will break the circuit without the use of an additional switch and are especially adapted for use on electric cars as headlight switches and to control the interior lights. Diameter base, $3\frac{1}{32}$ inches; height over cover, 1¾ inches; height over handle, $2\frac{23}{32}$ inches. Supporting screw spacings, $2\frac{3}{16}$ inches.

Operating, 1, Off, 2, Off

20 Amperes, 250 Volts—10 Amperes, 600 Volts

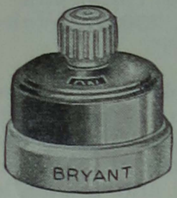
Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2411	Solid	2	50	36	**$295.00**

*Not N. E. C. Standard.

BRYANT EXPULSION TYPE SURFACE SWITCHES

N. E. C. Standard

FOR INDUCTIVE LOADS AND ELECTRIC RAILWAY CIRCUITS—PORCELAIN HANDLES


No. 2773

DOUBLE POLE TYPES

10 Amperes, 250 Volts
5 Amperes, 600 Volts

Outside diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{9}{16}$ inches; height over handle, $2\frac{5}{16}$ inches. Supporting screw spacings, 1¾ inches.

Templus Covers

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2773	Solid, Ind.	2	50	25	**$163.50**

20 Amperes, 250 Volts—10 Amperes, 600 Volts

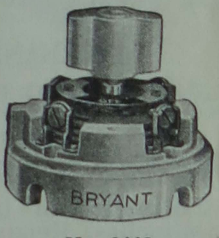
Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2447	Solid, Ind.	2	50	41	**310.00**

Outside diameter base, $3\frac{1}{32}$ inches; height over cover, 1¾ inches; over handle, $2\frac{23}{32}$ inches. Supporting screw spacings, $2\frac{3}{16}$ inches.

THREE-POINT SWITCHES

†Outside diameter base, $2\frac{7}{16}$ inches; height over cover, $1\frac{9}{16}$ inches; over handle, $2\frac{5}{16}$ inches. Supporting screw spacings, 1¾ inches.

‡Outside diameter base, $3\frac{1}{32}$ inches; height over cover, 1¾ inches; over handle, $2\frac{23}{32}$ inches. Supporting screw spacings, $2\frac{3}{16}$ inches.


No. 2448

†10 Amperes, 250 Volts—5 Amperes, 600 Volts

Templus Covers

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2179	Solid	2	50	18	**$148.50**
2413	Solid, Ind.	2	50	18	**163.50**

‡20 Amperes, 250 Volts—10 Amperes, 600 Volts

Mfrs. No.	Description	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2397	Solid	2	50	40	**278.00**
2415	Solid, Ind.	2	50	40	**295.00**

Three-point switches, when used on electric cars, are connected in the manner shown in the wiring diagrams, and are used as transfer switches; as, for instance switching off a headlight and switching on a platform light.

While only the 600 volt rating of the expulsion type switches is N. E. C. Standard, the suggested rating at 250 volts is also given for each switch.

The standard finish on all metal covers of surface switches, unless otherwise noted, is polished nickel which will be supplied when no finish is specified. For covers in any other finish, except silver and gold, add **$11.00** list per 100.

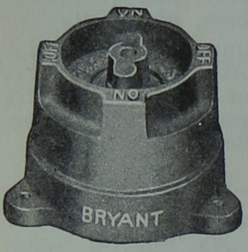
It is not advisable, though possible, to convert 600 volt switches into lock switches by use of No. 2384 universal lock attachment.

PERKINS EXPULSION TYPE SURFACE SWITCHES

N. E. C. Standard

FOR INDUCTIVE LOADS— REVERSIBLE TRIPLE-POLE

35 Amp., 125 Volts; 20 Amp., 250 Volts; and 10 Amp., 600 Volts, 2 H.P. 3-Phase, 230-575 Volts



No. 781

For controlling 3 phase alternating current motors up to and including 2 h.p. Switch mechanism has composition base and a handle which serves to indicate the position of the switch. Two covers are available: 1, a cast iron cover, finished black, designed to be attached to conduit fittings made by Crouse-Hinds Co., Appleton Electric Co., Columbia Metal Box Co., and V. V. Fittings Co.; the other is a stamped steel cover, with insulating lining, finished black. Cover is dust-tight.

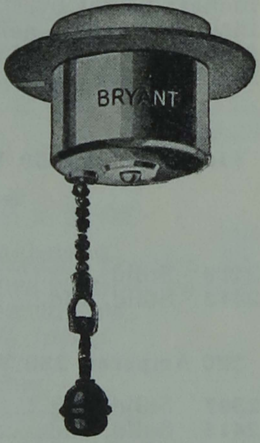
Switch Only, No Cover

Mfrs. No.	Amperes		Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
	250 V.	600 V.				
780	20	10	2	10	13	**$371.00**
Switch with Cast Iron Cover, Indicating						
781	20	10	2	10	40	**662.50**
Switch with Stamped Steel Cover, Black						
782	20	10	2	10	16	**413.50**

PERKINS PULL SWITCHES

CEILING TYPE—NON-INDICATING

With Bakelite Covers



For 3¼-Inch Outlet Boxes

Diameter of box cover, 3½ inches. Height of cover, 1$\frac{21}{32}$ inches. Supporting screw spacing, 2¾ inches. Porcelain base, 2¼ inches in diameter, extends $\frac{9}{16}$ inch below box cover.

For 4-Inch Outlet Boxes

Diameter of cover, 4⅜ inches. Height of cover, 1$\frac{21}{32}$ inches. Supporting screw spacing, 3½ inches. Porcelain base, 2¼ inches in diameter, extends $\frac{9}{16}$ inch below box cover.

Cadmium-Plated Covers for 3¼-Inch Outlet Boxes

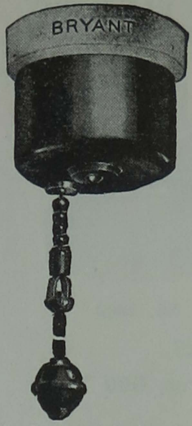
Mfrs. No.	Description	Amperes		Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
		125V.	250V.				
4331	Single-Pole	10	5	10	30	18	**$180.50**
4332	Double-Pole	10	10	2	10	6	**207.00**
4333	3-Point	10	5	2	10	6	**233.50**
4334	4-Point	5	2	2	10	6	**435.00**
2-Circuit, Operating 1, 2, 1 and 2, Off							
4335*	2-Circuit	10	5	2	10	6½	**244.00**
Cadmium-Plated Covers for 4-Inch Outlet Boxes							
4341	Single-Pole	10	5	10	30	23	**185.50**
4342	Double-Pole	10	10	2	10	8	**212.00**
4343	3-Point	10	5	2	10	8	**238.50**
4344	4-Point	5	2	2	10	8	**440.00**
2-Circuit, Operating 1, 2, 1 and 2, Off							
4345*	2-Circuit	10	5	2	10	7¾	**249.50**

Can be used with 3-light lamps.

PERKINS PULL SWITCHES

CEILING TYPE

Schedule H—N. E. C. Standard



Diameter of base, 2$\frac{9}{16}$ inches; height over cover, 2$\frac{5}{16}$ inches. Supporting screw spacing, 1¾ inches.

Each switch supplied with short chain and connector and 8 feet of linen cord and large black composition ball. Extra cord **$2.00** list per 100 feet; standard package quantity, 100 feet. Extra composition balls **$6.06** per 100; standard package quantity, 50. Extra chains, with connectors, **$15.16** per 100; standard package quantity, 50.

Deduct **$8.00** from the list price of any of the switches listed below when furnished without cord and ball.

With Bakelite Covers—Non-Indicating

Mfrs. No.	Amperes		Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
	125V.	250V.					
2387	10	5	S-P., Solid	10	30	16	**$170.00**
2309	10	5	S-P., Slotted	10	30	16	**170.00**
2396	10	10	D-P., Solid	2	10	5½	**196.50**
2314	10	10	D-P., Slotted	2	10	5½	**196.50**
2388	10	5	3-Pt., Solid	2	10	5½	**212.00**
2310	10	5	3-Pt., Slotted	2	10	5½	**212.00**
2389	5	2	4-Pt., Solid	2	10	5½	**424.00**
2311	5	2	4-Pt., Slotted	2	10	5½	**424.00**
Two-Circuit **Operating 1, 2, 1 and 2, Off**							
2390	10	5	Solid	2	10	5½	**233.50**
Electrolier, Three-Circuit **Operating 1, 1 and 2, 1 and 2 and 3, Off**							
2395	10	5	Solid	2	10	5	**233.50**
Three Speed Motor Control **Operating 1, 2, 3, Off**							
2863	10	5	Solid	2	10	5	**233.50**

Diameter base, 2¼ inches; height over cover, 1$\frac{23}{32}$ inches; supporting screw spacings, 1⅝ inches.

For 3¼ and 4-Inch Outlet Boxes

Mfrs. No.	Amperes 125V.	Amperes 250V.	Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
2769	10	5	Single-Pole	2	10	13	**212.00**
2770	10	10	Double-Pole	2	10	13	**238.50**

Diameter base, 4⅝ inches; supporting screw spacings, 2¾ and 3½ inches.

For Adaptiboxes—Unilets—Pipe Taplets

Mfrs. No.	Amperes 125V.	Amperes 250V.	Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
2694	10	5	Single-Pole	10	20	12	**170.00**

For type 500 Adaptiboxes, types GN, HM and W Octagonal Unilets and Size 10 round opening Pipe Taplets.

Diameter base, 2⅞ inches; supporting screw spacings, 2$\frac{5}{16}$ inches.

WALL TYPE—NON-INDICATING

Porcelain Bases and Bakelite Covers

Mfrs. No.	Amperes		Description	Car-ton	Std. Pkg.	Pkg. Wt.	Price Per 100
	125V.	250V.					
2546	10	5	S-P., Solid	10	30	16	**$170.00**
2547	10	5	S-P., Slotted	10	30	16	**170.00**
2565	10	10	D-P., Solid	2	10	6	**196.50**
2566	10	10	D-P., Slotted	2	10	6	**196.50**
2549	10	5	3-Pt., Slotted	2	10	5½	**212.00**
2560	5	2	4-Pt., Slotted	2	10	6	**424.00**

*Can be used with 3-light lamps.

PERKINS PENDENT SWITCHES

N. E. C. Standard

TYPE T PENDENT SWITCHES—SINGLE POLE

The standard finish is brush brass which will be furnished when no finish is specified. For special finishes, except silver and gold, prices upon application.

With Push-Through Buttons

Mfrs. No.	Description	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2572	Pendent Cap	6	3	10	100	16	$64.00

With 2 Buttons on Bottom, Small Pattern

Mfrs. No.	Description	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2370	Pendent Cap	6	3	10	100	27	85.00
2270	⅜-Inch Cap	6	3	10	100	27	106.00

With 2 Buttons on Bottom, Large Pattern

Mfrs. No.	Description	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2359	Pendent Cap	10	5	10	100	36	138.00
2354	⅜-Inch Cap	10	5	10	100	36	159.00

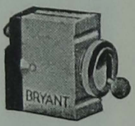
BRYANT PONY TYPE FLUSH SWITCHES

N. E. C. Standard

SINGLE-POLE FLUSH TUMBLER SWITCHES

5 Amperes, 125 Volts

Non-Indicating, without Plate



Switch for ⅝-inch round hole mounting with locknut.

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
5170	10	100	14	$75.00

Indicating, with Plate

Flush brass plate, stamped, .031-inch thick, square corners and beveled edges. Length, 2¼ inches; width, 1 inch.

Mfrs. No.	Description	Pkg. Wt.	Price Per 100
5171	Switch, with Plate	15	$72.50

Switch only, no plate, $55.00 per 100; plate only, no switch, $20.00 per 100.

Carton, 10; standard package, 100.

Nos. 5170 and 5171, dimensions of cup: length, 1⅜ inches; width, $\frac{31}{32}$ inch; depth, 1$\frac{3}{64}$ inches.

ACCESSORIES FOR SWITCHES

N.E.C. Standard

LOCK ATTACHMENT AND KEYS FOR ROTARY LOCK SWITCHES

No. 2384

No. 6000

By substituting this lock attachment for the handle on any Perkins rotary switch, lock switches are obtained. The key is used to operate the switch through the lock attachment and also to install or remove the lock attachment. Carton, 20.

Mfrs. No.	Description	Std. Pkg.	Price Per 100
2384	Lock Attachment	100	$24.50
6000	Universal Key	100	16.00

ACCESSORIES FOR SWITCHES

N. E. C. Standard

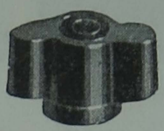
HANDLES FOR ROTARY SWITCHES

Threaded 8x32, except No. 18150.

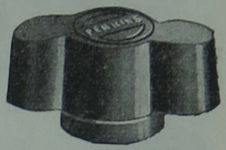
When switches are ordered without handles, deduct from list **$2.00** per 100 switches.

COMPOSITION HANDLES

No. 2777



No. 2779

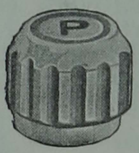


No. 2780

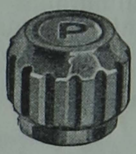
Mfrs. No.	Description	Size Switch Amps. 125&250V.	Size Switch Amps. 250&600V.	Std. Pkg.	Price Per 100
2777	Round, Comp.	3, 5 & 10	....	100	$13.00
2779	Flat, Comp.	20	....	100	13.00
2780	Flat, Comp.	30	....	100	13.00
18150	For No. 780, 781, 782, With Screw & Spring		(Carton, 2)	10	21.50

Carton, 20.

ROUND PORCELAIN HANDLES



No. 2781

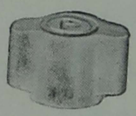


No. 2782

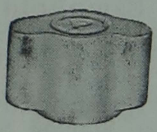
Mfrs. No.	Description	Size Switch Amps. 125&250V.	Size Switch Amps. 250&600V.	Std. Pkg.	Price Per 100
2781	Round, White Porcelain	3, 5, & 10	3 & 5	100	$13.00
2782	Round, Brown Porcelain	....	3	100	13.00

Carton, 20.

FLAT PORCELAIN HANDLES



No. 2783



No. 2784

Mfrs. No.	Description	Size Switch Amps. 125&250V.	Size Switch Amps. 250&600V.	Std. Pkg.	Price Per 100
2783	Flat, White	10 & 15	....	100	$13.00
2784	Flat, White	20 & 30	10 & 20	100	13.00

Carton, 20.

HEATER SWITCH HANDLES

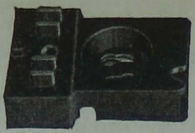
Porcelain indicating handles for No. 6200 and 6300 lines of reversible switches.

Mfrs. No.	For Switches Nos.	Pkg. Wt.	Price Per 100
6201	6249, 6259, 6269, 6247, 6257, 6258, 6267, 6246, 6256, 6266	8	$25.50
6202	6279, 6278, 6277, 6276	9	25.50
6203	6289, 6288, 6287, 6286	10	25.50
6204	6299, 6209, 6298, 6208, 6297, 6207, 6296, 6206	12	25.50

Carton, 20; standard package, 100.

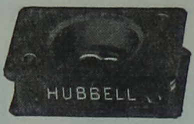
FLUORESCENT LAMPHOLDERS

FS-2 Starter
For 15 and 20-watt Fluorescent Lamps

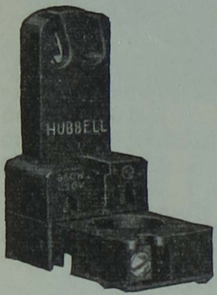


No. 2946

FS-4 Starter
For 30 and 40-watt Fluorescent Lamps

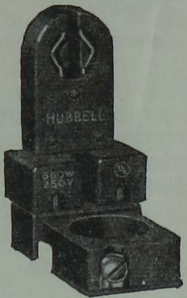


No. *2947



No. 2944

*No. 2948



No. 2942

The switch and condenser are mounted in a small aluminum container fitted with contacts. This unit designated as a Starter, fits into the socket of the Lampholders. When mounted, the Starter projects through a reflector or channel surface immediately below the lamp.

Cat. No.	Description	Color	Carton	Std. Pkg.	Wt. Lbs.
FS-2	Starter for 15 or 20 watt lamps	Alum.	10	100	4
FS-4	Starter for 30 or 40 watt lamps	Alum.	10	100	2
†2944	Lampholder and Starter Socket, straight push contacting	Black	10	100	10
†2945	Lampholder and Starter Socket, straight push contacting	*White	10	100	10
†2942	Lampholder and Starter Socket, twist turn contacting	Black	10	100	10
†2943	Lampholder and Starter Socket, twist turn contacting	*White	10	100	10
†2946	Starter Socket for attaching to Lampholders	Black	10	100	6
†2947	Starter Socket, for separate or remote mounting	....	10	100	5
2948	Spacer Sleeves for No. 2947	....	100	1000	5

NEW FIXTURE LAMPHOLDER FOR 1-INCH LAMPS

Straight Push Contacting

No. 2957

For narrow channel wiring.

660 Watts, 250 Volts

Cat. No.	Color	Carton	Std. Pkg.	Wt. Lbs.
2957	Black	10	100	6
2958	White	10	100	6

*Only the lampholder is white. Starter socket is black. †660 watts, 250 volts.

FLUORESCENT LAMPHOLDERS

STRAIGHT PUSH AND TWIST TURN CONTACTING

660 Watts, 250 Volts

No. 2940

No. 2936

No. 2938

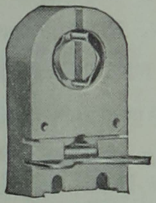
Straight Push Contacting

Black				White			
Cat. No.	Carton	Std. Pkg.	Pkg. Wt.	Cat. No.	Carton	Std. Pkg.	Pkg. Wt.
Flush or Surface Mounting*							
2940	10	100	6	2941	10	100	6
Twist Turn Contacting							
Flush or Surface Mounting*							
2936	10	100	6	2937	10	100	6
Flush Mounting for Narrow Channel Wiring†							
2938	10	100	6	2939	10	100	6

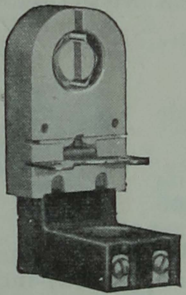
*For use with 1- and 1½-inch Fluorescent Lamps.
†For use with 1-inch Fluorescent Lamps.

MOGUL SIZE

660 Watts, 250 Volts

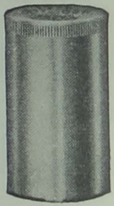


No. 2954



No. 2955

No. 2956



No. FS6

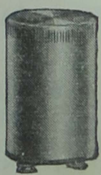
Cat. No.	Descripion	Color	Carton	Std. Pkg.	Wt. Lbs.
2955	Lampholder and Starter Socket, twist turn contacting	White	10	50	10
2954	Lampholder with twist turn contacting	White	10	50	6
2956	Starter Socket, for separate or remote mounting	Black	10	50	4
FS6	Starter for T-17 100-watt lamps	....	10	50	3

MIDGET SIZE

75 Watts, 250 Volts

No. 2952

No. 2953

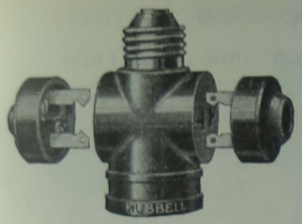


No. FS5

Cat. No.	Descripion	Color	Carton	Std. Pkg.	Wt. Lbs.
2952	Right Hand Lampholder	Black	10	100	2
2953	Left Hand Lampholder	Black	10	100	2
FS5	Starter for 4- and 6-watt lamps	....	10	100	3

HUBBELL CURRENT TAPS

660 Watts, 250 Volts



No. 6710

DOUBLE OUTLET

Multiple—Composition

With Two No. 5420 Caps

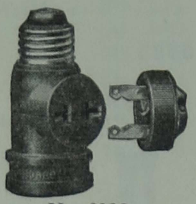
Cat. No.	Carton	Std. Pkg.	Pkg. Wt.
6710	10	20	11
Less Caps			
6711	10	20	8

SINGLE OUTLET

Multiple—Composition

With Composition Cap

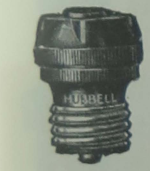
Cat. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
6338	10	50	24
Less Cap			
6339	10	50	17
Series—Porcelain			
Less Cap			
6298	10	50	20



No. 6338

HUBBELL SEPARABLE ATTACHMENT PLUGS

STANDARD SIZE—PARALLEL BLADES



All Bakelite

Regularly furnished in brown.

660 Watts, 250 Volts

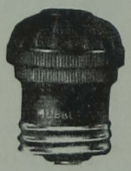
Cat. No.	Description	Cord Hole, In.	Carton	Std. Pkg.	Pkg. Wt.
9001	Plug Body	....	10	100	7
9002	Plug Cap	3/8x9/32	10	100	6

PONY SIZE—PARALLEL BLADES

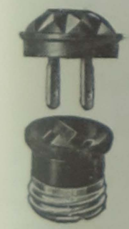
With Composition Cap

660 Watts, 250 Volts

Regularly furnished in black composition.



Cat. No.	Description	Cord Hole, In.	Carton	Std. Pkg.	Pkg. Wt.
7000	Plug Complete ..	3/8x9/32	25	500	48
7001	Body Only	....	25	500	40
7002	Cap Only	3/8x9/32	25	500	30
7066	Cap Only	5/16	25	500	30
7068	Cap Only	13/32	25	500	30



PONY SIZE—PARALLEL BLADES

Modernistic Design—All Bakelite

Consists of No. 9010 bakelite cap, and No. 9013 bakelite base.

Brown is standard color, but black may be had on special order at no advance in price.

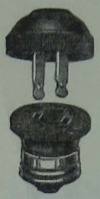
660 Watts, 250 Volts

Cat. No.	Description	Cord Hole, In.	Carton	Std. Pkg.	Pkg. Wt.
9012	Plug Complete	3/8x9/32	25	500	41
9013	Body Only	....	25	500	22
9010	Cap Only	3/8x9/32	25	500	20
9010-I	Ivorine Cap Only......	....	25	100	7

HUBBELL SEPARABLE ATTACHMENT PLUGS

STANDARD SIZE—PARALLEL BLADES

660 Watts, 250 Volts

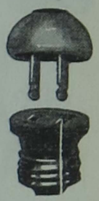


Cat. No.	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.
Composition Plug				
5915	13/32	10	250	35
Composition Plug Body				
5917	....	10	250	18
Composition Caps				
5964	13/32	10	250	22
6708	5/16	10	250	22
Brass Covered Caps				
5965	13/32	10	250	23

STANDARD SIZE—PARALLEL BLADES

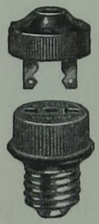
With Metal Covered Cap

660 Watts, 250 Volts



Cat. No.	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.
Composition Plug				
6828	13/32	10	250	40
7033	5/16	10	250	40
Composition Plug Body				
5917	....	10	250	18
Metal Covered Cap				
6827	13/32	10	250	25
7034	5/16	10	250	25

LARGE SIZE—TANDEM BLADES



Bakelite—Double T Slots

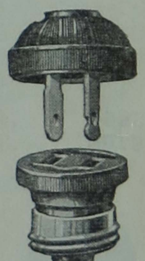
660 Watts, 250 Volts

Cat. No.	Description	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.
5467	Plug Complete	13/32	10	100	65
5420	Cap Only	13/32	10	100	15
5612	Plug Body	....	10	100	48

STANDARD SIZE—POLARIZED

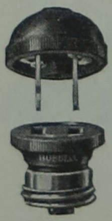
With Composition Cap

660 Watts, 250 Volts



Cat. No.	Cord Hole	Carton	Std. Pkg.	Pkg. Wt.
Attachment Plug				
6989	13/32	10	250	35
Composition Cap				
6764	13/32	10	250	22
Composition Plug Body				
5917	....	10	250	18

PARALINE CONVERTIBLE PLUG



This cap is fitted with convertible contact blades which may be adjusted by a twist of the fingers to fit parallel, tandem and right angle (polarized) form of slots.

660 Watts, 250 Volts

Cat. No.	Cord Hole	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
Composition Plug and Paraline Cap				
6670	13/32	10	100	15
Paraline—Composition Cap				
6671	13/32	10	100	9
Composition Plug Body				
5917	....	10	250	20

HUBBELL ATTACHMENT PLUG CAPS

10 AMP. ATTACHMENT PLUG CAPS

PARALLEL BLADES

10 Amp., 250 Volts—15 Amp., 125 Volts

Composition—Pony

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
7002	.375x.281	25	500	30
7066	.312	25	500	28
7068	.406	25	500	27

Bakelite—Pony Size

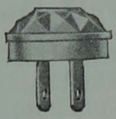
Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
9010	.375x.281	25	500	22

Bakelite—Pony Size

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
9016	.250	25	500	22

Pony Type—Ivorine

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
9010-I	.375x.281	25	100	7



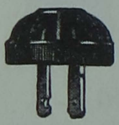
Bakelite—Pony Size
Finger Grip

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
9014	.312	10	100	6
***9017**	.312	10	100	6

*Polarized—one wide and one narrow blade.

Composition

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
5964	.406	10	250	19
6708	.312	10	250	20



Composition—Polarized

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
6764	.406	10	250	20

Composition—Brass Covered

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
5965	.406	10	250	24

KNOSTRAIN—PARALLEL BLADES
Composition

For Nos. 16 and 18 Standard and Nos. 16P and 18P Duracord.

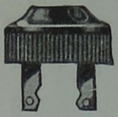
Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.
6060	10	50	6

HUBBELL ATTACHMENT PLUG CAPS

10 AMP. ATTACHMENT PLUG CAPS

TANDEM BLADES

10 Amp., 250 Volts—15 Amp., 125 Volts

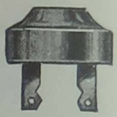


Bakelite—Heavy Duty

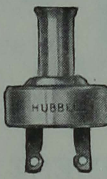
Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
5420	.406	10	100	6½

Brass Covered Composition
Heavy Duty

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
5523	.406	10	100	9½



Composition—Steel Covered—Finger-Grip



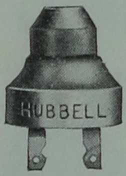
These finger-grip caps have 1-inch extensions to facilitate insertion and removal from the receptacle. Curved lip prevents undue wear on the cord at the point where it enters the cap.

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
10057	.406	10	50	10

Brass Covered Composition
Knostrain

For Nos. 16 and 18 standard, No. 16P and 18P Duracord. Standard finish, brush brass.

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.
5657	10	50	9



Brass Covered Composition
Metal Covered Knostrain Bushing

For Nos. 16 and 18 standard, 18 Super Service, 18PS Duracord 2-conductor.

Cat. No.	Car-ton	Std. Pkg.	Pkg. Wt.
5700	10	50	9

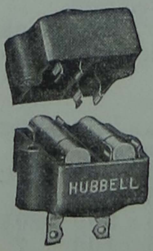
Composition—Elongated

For Nos. 12 and 14 cord. Also for No. 18 and No. 16 two-conductor type P Duracord.

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
6336	$\frac{13}{32}$	10	100	15
6337	½	10	100	15

HUBBELL BAKELITE FUSIBLE PLUG

Tandem Blades—6 Amperes, 250 Volts



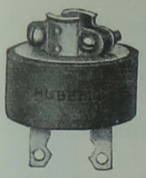
For use where small cartridge fuses up to 6 amperes are desired on both sides of the line. Furnished less fuses. Will receive 2 ferrule type enclosed cartridge fuses, overall length 1½ inches, diameter of ferrule $\frac{13}{32}$ inch.

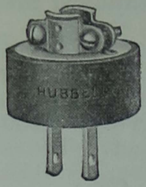
Cat No.	Car-ton	Std. Pkg.	Pkg. Wt.
7132	10	30	8

HUBBELL ATTACHMENT PLUG CAPS

RUBBER CORD-GRIP CAPS

10 Amp., 250 Volts—15 Amp., 125 Volts


No. 9752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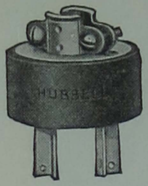
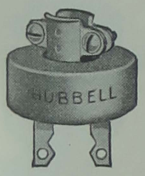

No. 9759

Cat. No.	Blades	Cord Diameter	Car-ton	Std. Pkg.	Pkg. Wt.
9752	Tandem	.296-.562	10	50	7
9753	Tandem	.406-.625	10	50	7
9754	Parallel	.296-.562	10	50	7
***9755**	Parallel	.296-.562	10	50	7
9756	Parallel	.406-.625	10	50	7
***9757**	Parallel	.406-.625	10	50	7
9759	Double T	.296-.562	10	50	7
9760	Double T Polarized	.296-.562	10	50	7
9761	Double T	.406-.625	10	50	7
9762	Double T Polarized	.406-.625	10	50	7

*Polarized—one wide and one narrow blade.

ARMORED CORD-GRIP CAPS

10 Amp., 250 Volts—15 Amp., 125 Volts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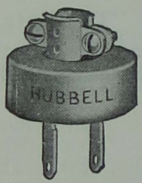
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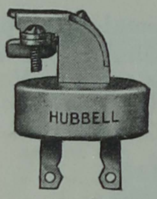

No. 9076

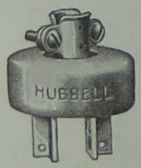
Cat. No.	Blades	Cord Diameter	Car-ton	Std. Pkg.	Pkg. Wt.
7056	Tandem	.296-.562	10	50	7
7057	Parallel	.296-.562	10	50	7
***7059**	Parallel	.296-.562	10	50	7
7183	Tandem	.406-.625	10	50	7
7184	Parallel	.406-.625	10	50	8
***7185**	Parallel	.406-.625	10	50	8
9076	Tandem, Angle	.500-.625	10	50	9
9077	Parallel, Angle	.500-.625	10	50	9

Special impact resisting composition cap, steel covered, cadmium plated.

*Polarized—one wide and one narrow blade.

DOUBLE "T" BLADES

10 Amp., 250 Volts—15 Amp., 125 Volts


No. 7162

No. 7196

Cat. No.	Blades	Cord Diameter	Car-ton	Std. Pkg.	Pkg. Wt.
7162	Armored, Comp.	.296-.562	10	30	5
7286	Armored, Polarized	.296-.562	10	30	5
7196	Bakelite	.406	10	50	4

HUBBELL CORD CONNECTORS

RUBBER CORD CONNECTORS

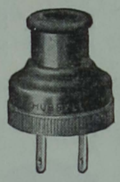
10 Amp., 250 Volts—15 Amp., 125 Volts

No. 9952

No. 9953

Cat. No.	Description	Cord Hole, Ins.	Car-ton	Std. Pkg.	Pkg. Wt.
9952	Body	.312-.468	10	50	9
9954	Body	.625	10	50	9
	With Cord Grip				
9953	Body	.312-.468	10	50	11
9955	Body	.625	10	50	11

RUBBER FINGER GRIP CAPS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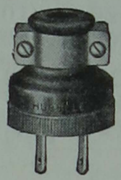
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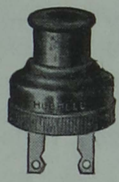
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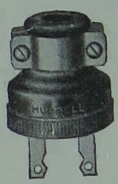

No. 9942

Cat No.	Blades	Cord Hole, Ins.	Car-ton	Std. Pkg.	Pkg. Wt.
9972	Parallel	.312-.437	25	100	8
***9973**	Polarized	.312-.437	25	100	8
9934	Parallel	.625	25	100	8
***9935**	Polarized	.625	25	100	8
9974	Tandem	.312-.437	25	100	8
9936	Tandem	.625	25	100	8
	With Cord Grips				
9940	Parallel	.312-.437	25	100	10
***9941**	Polarized	.312-.437	25	100	10
9937	Parallel	.625	25	100	10
***9938**	Polarized	.625	25	100	10
9942	Tandem	.312-.437	25	100	10
9939	Tandem	.625	25	100	10

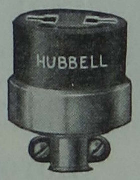
*Wide and narrow parallel blades.

COMPOSITION CONNECTOR BODIES

With Double "T" Slots

10 Amps., 250 Volts—15 Amps., 125 Volts

No. 5574


No. 7084

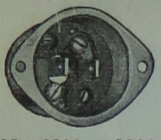
Cat. No.	Description	Cord Hole, Ins.	Car-ton	Std. Pkg.	Pkg. Wt.
5574	Body, Comp.	.406	10	50	8
7080	Body, Comp.	.312	10	50	8
	With "Cord Grip"				
7084	Body	.296-.562	10	50	11
7187	Body	.406-.625	10	50	11

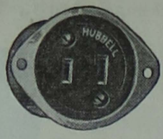
Steel cover cadmium plated.

HUBBELL MOTOR ATTACHMENT PLUGS

10 Amp., 250 Volts—15 Amps., 125 Volts

SMALL FLUSH MOTOR PLUGS


No. 6808 or 9808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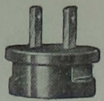
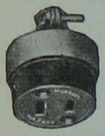
No. 6630-6979


No. 6631

Cat. No.	Description	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
6808	Male Base in Casing	.406	10	50	7
***9808**	Male Base in Casing	.406	10	50	7
9819	Female Base	.406	10	50	7
6631	Male Base	.406	10	50	3
6630	Body	.406	10	50	5
6979	Body	.312	10	50	5

*Polarized—one wide and one narrow blade.

Screw holes spaced 1¾ inches. Diameter shell, 1⅜ inches.


No. 7257
No. 7259

Polarized—Armored Cord-Grip Bodies

Fit flush motor bases Nos. 6808 or 9808.

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
7257	.406-.625	10	50	8
7259	.296-.406	10	50	8

SMALL SIZE CONNECTORS

Composition

10 Amp., 250 Volts—15 Amp., 125 Volts

No. 6630-6181

Cat. No.	Description	Cord Hole Inches	Pkg. Wt.
6180	Plug Complete	.406	7
***6630**	Body	.406	5
6181	Cap, Comp.	.406	3
†9181	Polarized Cap	.406	3

Cord-Grip Body and Caps

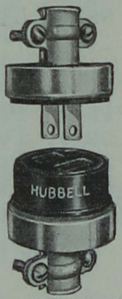
Cat. No.	Description	Cord Hole Inches	Pkg. Wt.
7257	Body	.406-.625	8
7357	Cap, Comp.	.406-.625	8
†9357	Polarized Cap	.406-.625	8

*Takes either polarized or non-polarized caps.

†Polarized one wide and one narrow blade.

None of the above small size devices interchanges with standard parallel blade devices

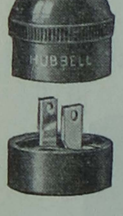
Standard package, 50; carton, 10.


No. 7257-7357

MOTOR PLUGS

Small-Composition

10 Amp., 250 Volts—15 Amp., 125 Volts


No. 7021-6630

Cat. No.	Description	Cord Hole	Car-ton	Std. Pkg.
***7021**	Base, Polarized	406	10	50
7024	Base	.406	10	50
6630	Body	.406	10	50

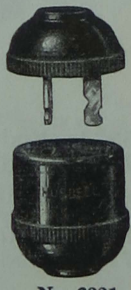
*One wide and one narrow blade.

Diameter base, 1 9/32 inches; Supporting screw holes .875″ on centers.

MOTOR PLUGS

Standard Size—Polarized

10 Amp., 250 Volts—15 Amp., 125 Volts


No. 6821

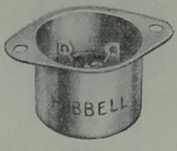
Cat. No.	Description	Cord Hole	Car-ton	Std. Pkg.	Pkg. Wt.
6821	Plug Complete	.406	10	50	10
6822	Body only	.406	10	50	7
6918	Cap only	.406	10	50	6

HUBBELL MOTOR ATTACHMENT PLUGS

10 Amp., 250 Volts—15 Amp., 125 Volts

FLUSH MOTOR PLUGS

Standard Size


No. 4896

Base—Tandem Blades

Supporting screw holes spaced 2 1/16 inches on centers for No. 8 screws. Diameter shell, 1 19/32 inches. Takes connector bodies Nos. 5574-7080.

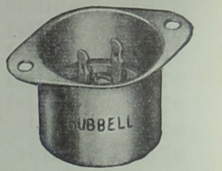
Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
4896	.406x.312	10	50	9

Base—Parallel Blades

Same as No. 4896. Takes connector bodies Nos. 5574, 7080, 7084, 7187, 9952, 9953, 9954 and 9955.

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
4897	.406x.312	10	50	9
4898*	.406x.312	10	50	9

*Polarized.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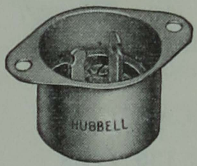

No. 7330

Base—Polarized Blades

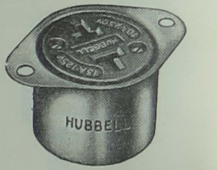
Screw spacings same as No. 4896. Takes connector body No. 6822. Base in casing.

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
7330	.375	10	50	10

Female Receptacle "T" Slots

Dimensions and screw spacings same as No. 7330. Takes all styles plug caps.

Cat. No.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
7332	....	10	50	12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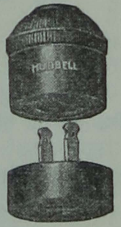
SURFACE MOTOR PLUGS

10 Amp., 250 Volts—15 Amp., 125 Volts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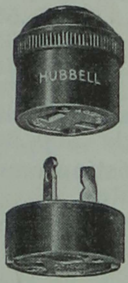
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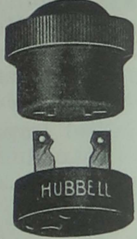

No. 5574-5896

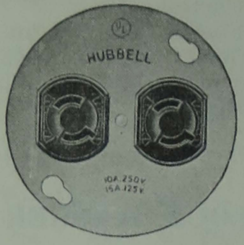
Cat. No.	Description	Diam. In.	Cord Hole Inches	Car-ton	Std. Pkg.	Pkg. Wt.
	With Parallel Blades and Slots					
***6118**	Body	......	.406	10	50	8
6823	Base	1½	.406-.312	10	50	4
	With Polarized Blades and Slots					
†6822	Body	......	.406	10	50	7
†7918	Base	1½	.375	10	50	6
	With Double "T" Slots and Tandem Blades					
5574	Body	......	.406	10	50	8
7080	Body	......	.312	10	50	8
5896	Base	1½	.406-.312	10	50	4

*Also takes No. 5964 cap. †Interchanges with No. 6822 body and No. 7330 base.

HUBBELL TWIST-TITE CONVENIENCE OUTLETS

Holds caps from falling out. Takes standard parallel bladed caps.

No. 9200
No. 9216



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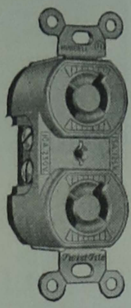


No. 9200-I
No. 9216-I

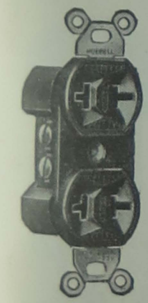
DUPLEX CONVENIENCE OUTLETS

10 Amperes, 250 Volts—15 Amperes, 125 Volts

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.
9200	Bakelite Receptacle Brown	10	100	25
9200-I	Bakelite Receptacle—Ivorine	10	50	13
9205	Receptacle, 3¼" Box Cover	10	50	20
9206	Receptable, 4" Box Cover	5	50	25

HUBBELL CONVENIENCE OUTLETS

STANDARD GRADE



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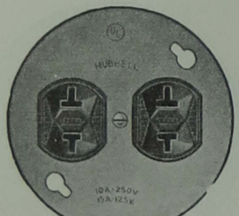

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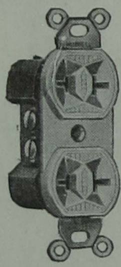


No. 9595-I

DUPLEX CONVENIENCE OUTLETS

10 Amp., 250 Volts—15 Amp., 125 Volts

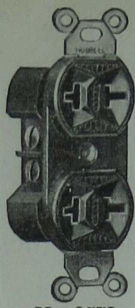
Side Wired—Double Binding Screws

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
9595	Bakelite, Wide Ears	10	100	26
9595-I	Ivorine, Wide Ears	10	50	13
9575	Bakelite, Narrow Ears	10	100	25
7260	Duplex, 3¼-inch Cover	10	50	21
7137	Duplex, 4 -inch Cover	5	50	26

It is impossible to list all of the materials we can supply in this catalog.

Advise us of your requirements which will receive our prompt and careful attention.

HUBBELL CONVENIENCE OUTLETS



No. 9573

BAKELITE DUPLEX OUTLETS

With Separate Feeds—Side Wired

10 Amp., 250 Volt—15 Amp., 125 Volt Each Outlet

One outlet can be wired to a switch for independent control of lamps, and the other outlet permanently alive at all times.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
9571	Bakelite, 2 Feeds, 1 Return	10	100	24
9571-I	Ivorine, 2 Feeds, 1 Return	10	50	12
9573	Bakelite, 2 Feeds, 2 Returns	10	100	24
9573-I	Ivorine, 2 Feeds, 2 Returns	10	50	12

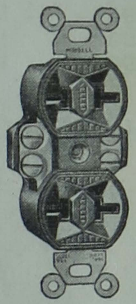
BAKELITE DUPLEX CONVENIENCE OUTLETS

Top Wired—Double Binding Screws

10 Amp., 250 Volt—15 Amp., 125 Volt Each Outlet

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
7625	Narrow Ears	10	100	23
7626	Wide Ears	10	100	24
7626-I	Ivorine	10	50	12

Supporting screw holes are spaced $3\frac{3}{32}$ inches on centers.



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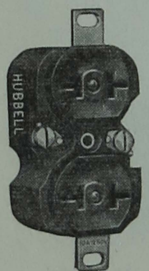


No. 6257

DUPLEX CONVENIENCE OUTLET

Top Wired—Single Binding Screws

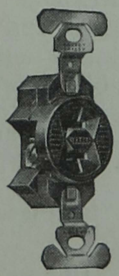
10 Amp., 250 Volt—15 Amp., 125 Volt Each Outlet

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
6257	Black Porc.	10	100	32
5890	Brown Comp.	10	100	32

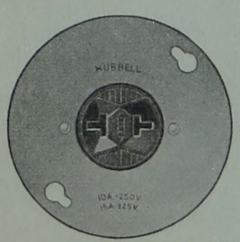
Supporting screw holes spaced $3\frac{3}{32}$ inches on centers.

SINGLE CONVENIENCE OUTLETS

10 Amp., 250 Volts
15 Amp., 125 Volts



No. 7590



No. 7135-7136

No. 5547

Cat. No.	Description	Wired	Carton	Std. Pkg.	Pkg. Wt.
7590	Bakelite, Wide Ears	Side	10	100	20
7590-I	Ivorine, Wide Ears	Side	10	50	11
7550	Bakelite, Narrow Ears	Side	10	100	18
7135	Single, 3¼-in. Cover	Side	10	100	40
7136	Single, 4 -in. Cover	Side	5	50	23
5547	Black Porc., Wide Ears	Top	10	100	32
5850	Brown Comp., Wide Ears	Top	10	100	30

HUBBELL CONVENIENCE OUTLETS

No. 9990

ACORN SINGLE AND DUPLEX RECEPTACLES

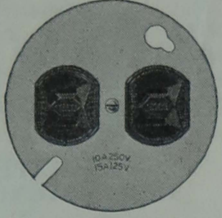
10 Amp., 250 Volt—15 Amp., 125 Volt

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
9992	Single Bakelite....	10	100	12
9992-I	Ivorine	10	50	7
9990	Duplex Bakelite..	10	100	15
9990-I	Ivorine	10	50	8

ACORN FLUSH RECEPTACLES ON BOX COVERS

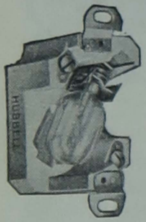
10 A., 250 V.—15 A., 125 V.

Cat. No.	Box Cover	Type	Carton	Std. Pkg.	Pkg. Wt.
9996	3¼	Single	10	100	30
9994	3¼	Duplex	10	50	16
9997	4	Single	5	50	21
9995	4	Duplex	5	50	20



Nos. 9994-9995

HUBBELL PILOT LAMP RECEPTACLES



CANDELABRA BASE

Porcelain

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
427	With 125-V Lamp	10	30	13
429	Lamp for No. 427	10	30	3
428	With 250-V Lamp	10	30	12
430	Lamp for No. 428	10	30	3

BULL'S EYE JEWELS

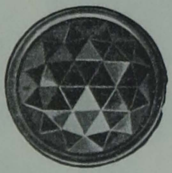
Ruby glass and brush brass rings are standard.

Cat. No.	Style	Pkg. Wt.
7298	Rectangular......	2
736	Round	2

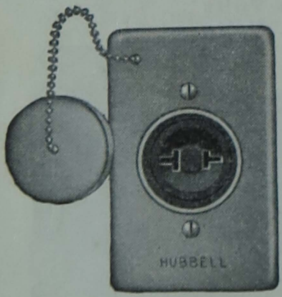
Carton, 10. Standard package, 30.

(No. 736 can be removed from the front).

No. 7298


No. 736

HUBBELL FLUSH RECEPTACLES



No. 7790

OUTDOOR FLUSH RECEPTACLE

10A., 250V.—15A., 125V.

Unit is complete with receptacle, rubber mat and steel plate, cadmium finish. Plate edges are rounded, to fit "FS" type fittings.

Two-Wire—With Plate

Cat. No.	Carton	Std. Pkg.	Pkg. Wt.
7790	2	10	7

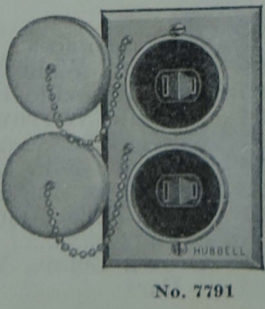
OUTDOOR DUPLEX FLUSH RECEPTACLE

10A., 250V.—15A., 125V.

Unit is complete with .060 brass plate, metal caps, rubber mat and duplex outlet with parallel slots.

2-Wire Duplex

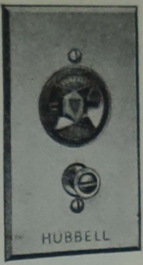
Cat. No.	Carton	Std. Pkg.	Pkg. Wt.
7791	2	10	7



No. 7791

HUBBELL FAN HANGER OUTLETS

(Patented)



10A., 250V.—15A., 125V.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.
7710	Yoke Support and .060" Plate....	20	19
7714	Stud Support and .060" Plate....	20	19

Carton—10.

Special finishes on plates for Fan Hangers take a 10% advance over the usual special finish charges for plates.

HUBBEL CLOCK HANGER OUTLETS

10A., 125V.—15A., 250V.

This device allows the clock to hang flush with the wall and to cover neatly the electrical outlet.

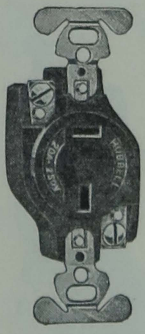
Cat. No.	Description	Std. Pkg.	Pkg. Wt.
7707	2-Wire, .040 Plate	10	5
7715	2-Wire, .060 Plate	10	6
7708	3-Wire, .040 Plate	10	6
7709	3-Wire, .060 Plate	10	7

Carton 2.

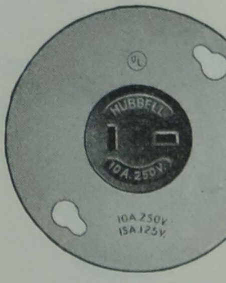
No. 7707

HUBBELL POLARIZED DEVICES

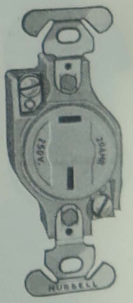
2-WIRE POLARIZED FLUSH RECEPTACLES



Nos. 5566, 5552



Nos. 7270, 7272



No. 5566-I

10 Amps., 250 Volts, 15 Amps., 125 Volts

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.
5566	Black Porcelain	10	30	11
5566-B	Black Bakelite	10	30	7
5566-I	Ivorine	10	30	7
***7270**	Bakelite with 3¼" Cover	10	30	18
7271	Bakelite with 4" Cover....	5	30	20

20 Amperes, 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.
5552	Black Porcelain	10	30	11
5552-B	Black Bakelite	10	30	7
5552-I	Ivorine	10	30	7
***7272**	Bakelite with 3¼" Cover	10	30	18
7273	Bakelite with 4" Cover....	5	30	20

*These receptacles will readily fit 3¼-inch outlet boxes when only one box connector is used. When two or more box connectors are needed the receptacles with 4-inch covers are required.

HUBBELL POLARIZED DEVICES

2-WIRE POLARIZED CORD-GRIP CAPS

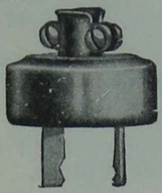
Rubber

10 A., 250 V.—15 A., 125 V.

Cat. No.	Cord Hole Inches	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
9970	19/64 to 9/16	10	30	5
9971	⅝	10	30	5
20 Amperes, 250 Volts				
9758	⅝	10	30	6

2-WIRE POLARIZED ARMORED CORD-GRIP CAPS

Composition—Steel Covered



10 A., 250 V.—15 A., 125 V.

Cat. No.	Cord Hole, In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
7092	19/64	10	30	10
7241	⅝	10	30	10
20 Amperes, 250 Volts				
7058	⅝	10	30	10

2-WIRE POLARIZED PLUG CAPS

10 A., 250 V.,—15 A., 125 V.
Composition

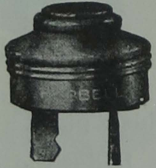
Cat. No.	Cord Hole, In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
6730	13/32	10	30	4

10 A., 250 V.,—15 A., 125 V.
Porcelain—Brass Covered

Cat. No.	Cord Hole, In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
5567	13/32	10	30	5

20 Amperes, 250 Volts
Composition

Cat. No.	Cord Hole, In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
6720	½	10	30	4



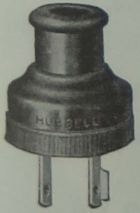
20 Amperes, 250 Volts
Porcelain—Brass Covered

Cat. No.	Cord Hole, In.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
5553	½	10	30	5
Composition—Brass Covered				
6156	½	10	30	5

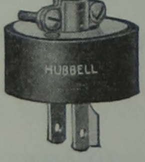
2-WIRE POLARIZED PLUG CAPS

For No. 9200 Receptacle

10 Amp., 250 Volts—15 Amp., 125 Volts



No. 9202



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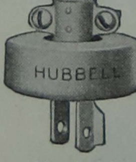


No. 9214

Cat. No.	Description	Cord Hole Inches	Carton	Std. Pkg.	Pkg. Wt.
9202	Rubber, Finger Grip	.437	25	100	8
9208	Rubber, Cord Grip	.296–.562	10	50	7
9214	Armored, Cord Grip	.296–.562	10	50	7

The above polarized caps are designed specially for use with No. 9200 Receptacle. Owing to the shape of the polarized blade, they cannot be turned to the extra tight position.

HUBBELL TWIST-LOCK DEVICES

MIDGET TWIST-LOCK DEVICES

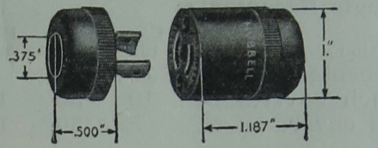
A Twist of the Cap and it Locks

The operation of portable motor-driven tools and equipment involves both a risk and a nuisance. The risk endangers the user; the nuisance of broken connections interrupts his work and reduces productive capacity.

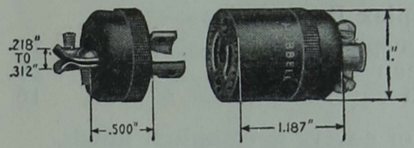
Positive protection against both electrical hazard and disconnection delays is provided by Twist-Lock Polarized Devices.

10 AMP. MIDGET CORD CONNECTORS

10 Amp., 250 Volts—15 Amp., 125 Volts



No. 7460



No. 7463

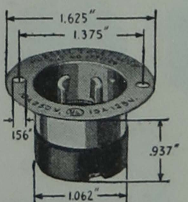
Without Cord Grip—.375" Cord Hole

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
7460	Connector Complete	10	50	4
7461	Connector Body only	10	50	2½
7462	Cap Only	10	50	1¼
7476	Connector Complete, Polarized	10	50	4
7477	Cap Only, Polarized	10	50	1¼
With Cord Grip—Clamp Spread .218 to .312"				
7463	Connector Complete	10	50	5
7464*	Connector Body Only	10	50	3
7465	Cap Only	10	50	1½
7478	Connector Complete, Polarized	10	50	5
7479	Cap Only, Polarized	10	50	1½

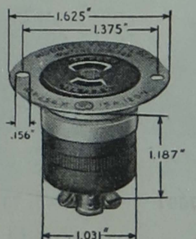
Steel Cord-Grips finished to match brown bakelite bodies.

10 AMP. MIDGET FLUSH MOTOR BASES

10 Amp., 250 Volts—15 Amp., 125 Volts



No. 7466



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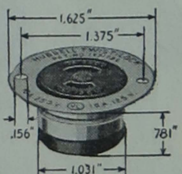


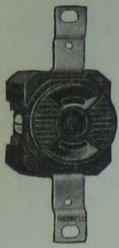
No. 7468

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
7466	Male Base	10	50	3
7467	Male Base, Polarized	10	50	3
7468*	Female Base	10	50	3
7473	No. 7468 Receptacle on 3¼" Steel Box Cover	10	50	6
7471*	Female Base, Covered Terminals without Cord Grips	10	50	3½
7472*	Female Base, Covered Terminals with Cord Grips	10	50	4

*Will accommodate both polarized and non-polarized caps.

HUBBELL TWIST-LOCK DEVICES

10 AMP. 2-WIRE RECEPTACLES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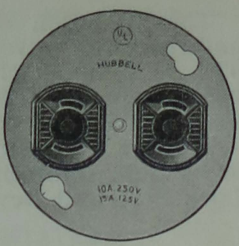
No. 7540


No. 7543

10 Amp., 250 Volts—15 Amp., 125 Volts

Single Receptacles

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7535	Bakelite Receptacle	10	50	8
7536	With 3¼-inch cover	10	30	10
7537	With 4-inch cover	5	30	12

Duplex Receptacles

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7540	Bakelite Receptacle	10	50	14
7543	With 3¼-inch cover	10	50	25
7544	With 4-inch cover	5	30	15

Standard finish of covers is cadmium finish. These receptacles may be used with either polarized or non-polarized Twist-Lock Caps.

10 AMP. BAKELITE CONNECTOR BODIES

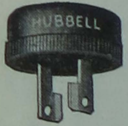
No. 7503

No. 7506

10 Amp., 250 Volts—15 Amp., 125 Volts

Cat. No.	Description	Cord Diam., In.	Car-ton	Std. Pkg.	Pkg. Wt.
7503	Connector Body	.375	10	50	7
7506	Body, Cord Grip	.296-.562	10	50	7

10 AMP. 2-WIRE PLUG CAPS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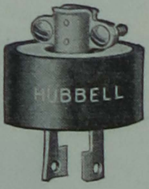
No. 7507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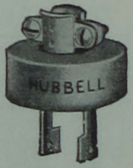

No. 7542

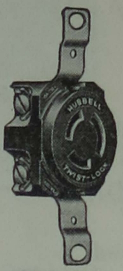
Cat. No.	Description	Cord Diam., In.	Car-ton	Std. Pkg.	Pkg. Wt.
7504	Bakelite	.375	10	50	6
7507	Bakelite, C.Grip	.296-.562	10	50	6
***7505**	Bakelite	.296-.562	10	50	6
***7508**	Bakelite, C.Grip	.406-.625	10	50	6
7545	Rubber	.296-.562	10	50	6
7546	Rubber	.406-.625	10	50	6
***7547**	Rubber	.296-.562	10	50	6
***7548**	Rubber	.406-.625	10	50	6
7542	Armored	.296-.562	10	50	7
7549	Armored	.406-.625	10	50	7
***7588**	Armored	.296-.562	10	50	7
***7589**	Armored	.406-.625	10	50	7

*Polarized—One wide and one narrow blade.

HUBBELL TWIST-LOCK DEVICES

10 AMP. 3-WIRE RECEPTACLES

10 Amp., 250 Volts—15 Amp., 125 Volts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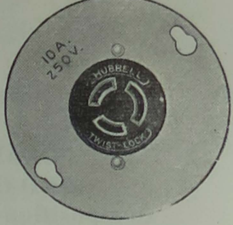

No. 7583-7584

Black bakelite is standard for receptacles. Supporting screw holes are spaced 3 9/32 inches. Standard finish of covers is cadmium.

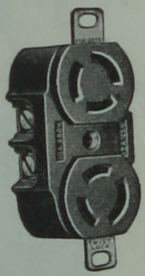
No. 7582 fits any standard single flush receptacle plate.

If desired grounded, suffix letter "G" to catalog number.

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7582	Single Receptacle	10	50	9
7583	Single Receptacle, 3¼-inch	10	30	22
7584	Single Receptacle, 4-inch	5	30	13

10 AMP. 3-WIRE DUPLEX FLUSH RECEPTACLE

10 Amps, 250 Volts—15 Amps, 125 Volts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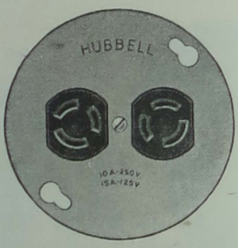

No. 7581

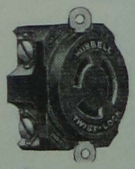
No. 7580 takes any standard duplex receptacle flush plate.

If desired grounded, suffix letter "G" to catalog number.

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7580	Bakelite Duplex Receptacle	10	50	11
7581	Bakelite Duplex Receptacle, 4-inch cover	5	30	15

10 AMP. 3-WIRE RECEPTACLE

With Close Mounting Strap


No. 7586

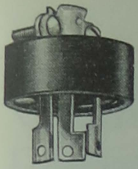
10 Amp., 250 Volts

15 Amp., 125 Volts

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7586	Bakelite Receptacle, Black	10	50	9

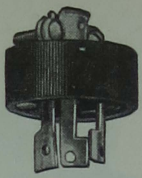
HUBBELL TWIST-LOCK DEVICES

10 AMP. 3-WIRE POLARIZED CONNECTORS AND CAPS


No. 7567

10 Amps., 250 Volts

15 Amps., 125 Volts


No. 7554

Caps

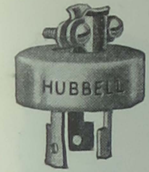
Cat. No.	Description	Cord Grip	Car-ton	Std. Pkg.	Pkg. Wt.
7567	Rubber Cap	9/16	10	50	6
7568	Rubber Cap	⅝	10	50	6
7554	Bakelite Cap	9/16	10	50	6
7558	Bakelite Cap	⅝	10	50	6
	Bakelite Connector Bodies				
7555	Body..............	9/16	10	50	8
7559	Body..............	⅝	10	50	8

No. 7555

10 AMP. 3-WIRE CORD-GRIP CAPS

Metal Covered

10 Amp., 250 V.—15 Amp., 125 V.



No. 7572

Cat. No.	Diam. Cord	Car-ton	Std. Pkg.	Wt.Lbs. Std. Pkg.
7572	.296 to .562	10	50	6
7573	.406 to .625	10	50	6

If desired grounded, suffix letter "G" to catalog number.

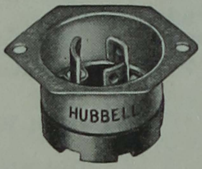
10 AMP., 3-WIRE MOTOR PLUG BASES, POLARIZED

10 Amps., 250 Volts
15 Amps., 125 Volts
Motor Plug Bases in Casings

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7556	Bakelite, with Contact Blades	10	50	5
7557	Bakelite, Female Flush Base..................	10	50	7

Supporting screw holes in Nos. 7556 and 7557 are 1 15/16 inches on centers.

Diameter of bases 1½ inches. Height of bases, 1 5/32 inches.



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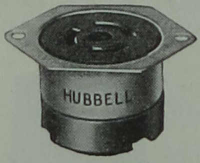


No. 7557

3-WIRE CONDUIT BOX RECEPTACLE

20 Amperes, 250 Volts

Designed for permanent grounding from one contact to conduit system.

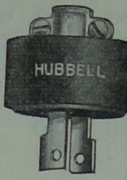
Mounting screws ⅝-inch centers. Suitable for use with Crouse-Hinds "W" condulets and "O" cover, Appleton "W" unilets with No. 5680 cover, and Adalet fittings Nos. G2H, G3H and G4H.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.
7329	Receptacle, Porcelain........	10	30	10

HUBBELL TWIST-LOCK DEVICES

20 AMP. 2-WIRE PLUG CAPS

20 Amperes, 250 Volts



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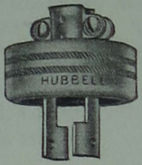
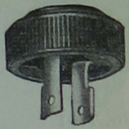


No. 7102

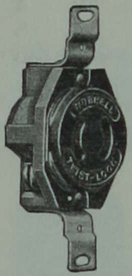

No. 7062

Cat. No.						
Cord-Grip Caps						
Rubber	Metal Covered	Composition	Cord Holes	Car-ton	Std. Pkg.	Pkg. Wt.
9763	7102	....	9/16	10	30	5
9764*	9102*	....	9/16	10	30	5
9765	7238	....	⅝	10	30	5
9766*	9103*	....	⅝	10	30	5
....	....	7062	13/32	10	50	7
....	....	7063*	13/32	10	50	7

*Polarized—One wide and one narrow blade.

20 AMP. 2-WIRE FLUSH RECEPTACLES

20 Amperes, 250 Volts



This receptacle may be used with either polarized or non-polarized twist-lock caps.

Supporting screw holes spaced 3 9/32 inches. No. 7210 receptacle fits any standard single convenience outlet plate.

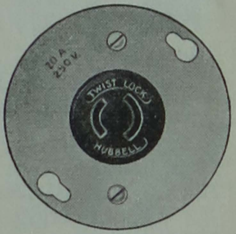
Porcelain—Side Wired

Cat. No.	Car-ton	Std. Pkg.	Wt.Lbs. Std.Pkg.
7210	10	50	12

With 3¼-Inch Cover

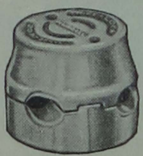
Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.
7216	10	50	25
With 4-Inch Cover			
7217	5	30	17

Standard finish of covers is cadmium finish. Black covers may be had on special order at no advance in price.



20 AMP. 2-WIRE PORCELAIN RECEPTACLES

20 Amperes, 250 Volts



Mounting screws 31/32 inches, diameter 1¾ inches, height 1 27/64 inches. Face diameter 1½ inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7624*	Receptacle....	10	50	14

*Appleton Type "W" Unilet with their No. 5681 cover accommodates No. 7624 receptacles.

20 AMP. 2-WIRE SCREW BASE PLUG

660 Watts, 250 Volts

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7612	2-Wire Plug Base	10	100	18

No. 7612

HUBBELL TWIST-LOCK DEVICES

20 AMP. 2-WIRE CORD-GRIP CONNECTORS

20 Amperes, 250 Volts

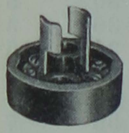
No. 7101

Bakelite steel covered, cadmium plated. Bodies may be used with either polarized or non-polarized caps.

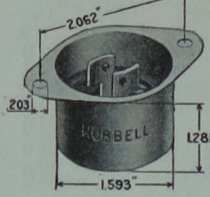
Cat. No.	Cord Diameter	Car-ton	Std. Pkg.	Pkg. Wt.
7101	.296 to .562	10	30	9
7224	.406 to .625	10	30	9

20-AMP. 2-WIRE MOTOR PLUGS

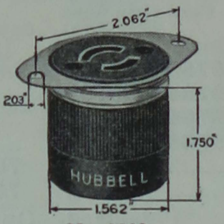
20 Amperes, 250 Volts



No. 7191



Nos. 8808-9105



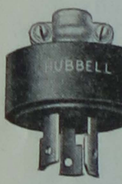
No. 8809

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7191	Surface Base, Comp., Male	10	30	4
‡9104	Surface Base, Comp., Male	10	30	4
8808	Flush Base, Male	10	30	6
‡9105	Flush Base, Male	10	30	4
8809	Flush Base, Female	10	30	8

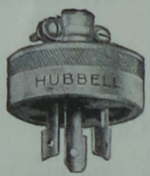
Bodies may be used with polarized or non-polarized bases.

‡Polarized—One wide and one narrow blade.

20 AMP. 3-WIRE POLARIZED CAPS AND CONNECTOR



No. 9965



No. 7311

No. 7313

20 Amp., 250 Volts, A.C. or D.C.
10 Amp., 575 Volts, A.C.

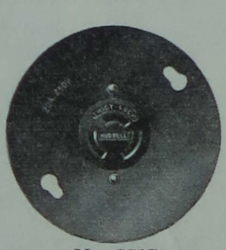
Cat. No.	Description	Cord Diameter	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.
*9965	Rubber	.437" to .750"	10	30	8
*7311	Composition, Armored	.437" to .750"	10	30	8
7313	Bakelite Body	.437" to .750"	10	30	11

20 AMP. 3-WIRE FLUSH RECEPTACLES

No. 7310

20 Amp., 250 Volts, A.C. or D.C.

10 Amp., 575 Volts, A.C.



No. 7517

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.
*7310	Porcelain Receptacle	10	30	11
7517	With 4" box cover attached	5	20	13
†7502	Two Outlet Brass Plate .060"	5	10	5

†Requires 3-gang outlet box.

No. 7310 takes standard single outlet plates.

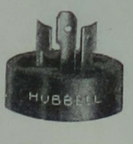
*If 3 or 4-wire devices are desired with ground shunt, suffix letter "G" to catalog number.

HUBBELL TWIST-LOCK DEVICES

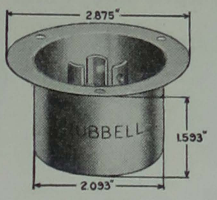
20 AMP. 3-WIRE MOTOR PLUGS

20 Amp., 250 Volts, A.C. or D.C.

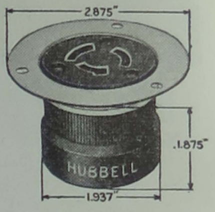
10 Amp., 575 Volts, A.C.



No. 7318



No. 7327



No. 7328

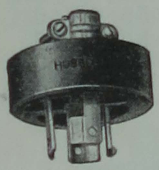
Screw holes are spaced 120 degrees apart on 1¼-inch radius for No. 8 screws.

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
*7318	Surface Base, Comp., Male	10	30	6
*7327	Flush Base in Casing, Male	10	30	13
*7328	Flush Base, Female	10	30	10

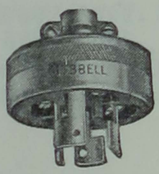
20 AMP. 4-WIRE POLARIZED CAPS AND CONNECTORS

20 Amp., 250 Volts, A.C. or D.C.

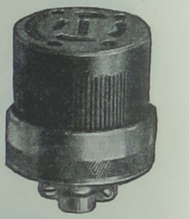
10 Amp., 575 Volts, A.C.



No. 9967



No. 7411



No. 7413

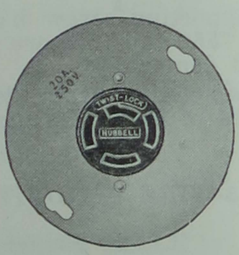
Cat. No.	Description	Cord Diam.	Car-ton	Std. Pkg.	Pkg. Wt.
*9967	Rubber	.437-.750	10	20	9
*7411	Comp., Armored	.437-.750	10	20	8
7413	Bakelite Body	.437-.750	10	20	11

20 AMP. 4-WIRE FLUSH RECEPTACLES

20 Amp., 250 Volts, A.C. or D.C.

10 Amp., 575 Volts, A.C.

No. 7410



No. 7417

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7410	Porcelain Receptacle	10	20	9
7417	With 4-inch box cover attached	5	15	10
7421	Single Plate, .060-inch Brass	10	20	6
†7422	Two Outlet Brass Plate .060"	5	10	5

†Requires 3-gang outlet box.

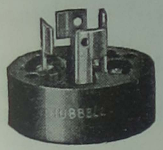
*If 3 or 4-wire Twist-Lock devices are desired with ground shunt from one contact to cover or casing, suffix letter "G" to catalog number.

HUBBELL TWIST-LOCK DEVICES

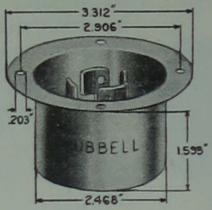
20 AMP. 4-WIRE MOTOR PLUGS

20 Amp., 250 Volts, A.C. or D.C.

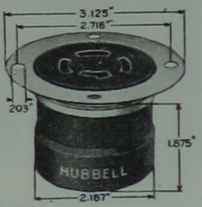
10 Amp., 575 Volts, A.C.



No. 7415



No. 7408



No. 7409

Screw holes are spaced 90 degrees apart.

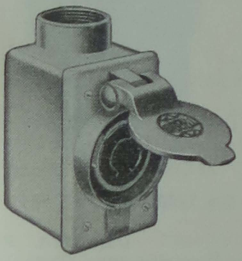
Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
*7415	Surface Base, Comp., Male	10	20	7
*7408	Flush Base in Casing, Male	10	20	10
*7409	Flush Base, Female	10	20	9

*If the 3 or 4-wire Twist-Lock devices are desired with ground shunt from one contact to cover or casing, suffix letter "G" to catalog number.

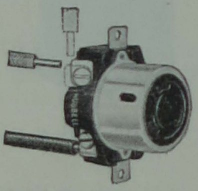
50 AMP. 3-WIRE FLUSH RECEPTACLES AND PLATES—POLARIZED

With Solderless Connections

50 Amp., 250 Volts D.C.—30 Amp., 600 Volts, A.C.



No. 7380 and 7382
Assembled to Outlet Box*



No. 7380
Two-Way Wiring
Solderless Connections

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
7380	Flush Receptacle	2	5	3
7381	Flush Receptacle, grounded	2	5	3
7382	Cast Iron Plate, with lift cover	2	5	5½
7383	Cast Iron Plate without lift cover	2	5	3

Standard finish is cadmium.

Receptacle and plate will fit FS and FD boxes.

*Outlet box not supplied.

The solderless wiring clamps can be swiveled so as to admit wire from end or bottom as shown.

Important Features of Twist-Lock Devices

(1) Patented adjustable steel cord-grip — cadmium-plated. (2) Grounding shunt to metal cover. (3) Blades anchored to molded-in solid metal inserts. (4) Grounding blade longer than others to make contact first and break it last. (5) Lock—Each spring cell in the connector body and receptacle is provided with a shoulder under which the off-set ends of the contact blades of caps turn. (6) Exposed body of molded Black Bakelite. (7) Curved, double-sided phosphor bronze contact springs assure positive connection. (8) Steel covers, cadmium-plated to resist rust and corrosion. (9) Large, accessible binding screws for easy wiring. (10) Curved contact blades, made of hard brass.

HUBBELL TWIST-LOCK DEVICES

50 AMP. 3-WIRE POLARIZED CONNECTORS

With Solderless Connections and Rubber Cable Grips

50 Amp., 250 Volts D.C.

30 Amp., 600 Volts A.C.

No. 7336

No. 7339

Not Grounded

Cat. No.	Description	Cable Diameter	Car-ton	Std. Pkg.	Wt. Lbs.
7336	Female Body	.437 to .562	2	5	7
7343	Female Body	.562 to .687	2	5	7
7390	Female Body	.687 to .812	2	5	7
7384	Female Body	.812 to .937	2	5	7
7396	Female Body	.937 to 1.062	2	5	7

***Grounded to Casing**

Cat. No.	Description	Cable Diameter	Car-ton	Std. Pkg.	Wt. Lbs.
7337	Female Body	.437 to .562	2	5	7
7344	Female Body	.562 to .687	2	5	7
7391	Female Body	.687 to .812	2	5	7
7385	Female Body	.812 to .937	2	5	7
7397	Female Body	.937 to 1.062	2	5	7

†With Equipment Ground

Cat. No.	Description	Cable Diameter	Car-ton	Std. Pkg.	Wt. Lbs.
7338	Female Body	.437 to .562	2	5	7
7345	Female Body	.562 to .687	2	5	7
7392	Female Body	.687 to .812	2	5	7
7358	Female Body	.812 to .937	2	5	7
7386	Female Body	.937 to 1.062	2	5	7

Not Grounded

Cat. No.	Description	Cable Diameter	Car-ton	Std. Pkg.	Wt. Lbs.
7339	Male Cap	.437 to .562	2	5	5
7346	Male Cap	.562 to .687	2	5	5
7393	Male Cap	.687 to .812	2	5	5
7387	Male Cap	.812 to .937	2	5	5
7398	Male Cap	.937 to 1.062	2	5	5

***Grounded to Casing**

Cat. No.	Description	Cable Diameter	Car-ton	Std. Pkg.	Wt. Lbs.
7340	Male Cap	.437 to .562	2	5	5
7347	Male Cap	.562 to .687	2	5	5
7394	Male Cap	.687 to .812	2	5	5
7388	Male Cap	.812 to .937	2	5	5
7399	Male Cap	.937 to 1.062	2	5	5

†With Equipment Ground

Cat. No.	Description	Cable Diameter	Car-ton	Std. Pkg.	Wt. Lbs.
7342	Male Cap	.437 to .562	2	5	5
7348	Male Cap	.562 to .687	2	5	5
7395	Male Cap	.687 to .812	2	5	5
7359	Male Cap	.812 to .937	2	5	5
7389	Male Cap	.937 to 1.062	2	5	5

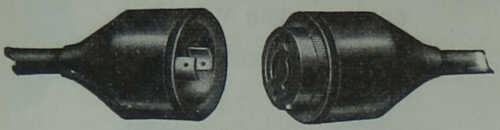
***Grounded** means that the long contact blade of the cap and the corresponding contact in the connector body and receptacle are electrically connected to the Outer Casing.

†Equipment Ground means that none of the contacts are electrically connected to the shell, but there is an additional terminal for the fourth wire, which is connected electrically to the Outer Casing. This fourth wire is for equipment ground.

HUBBELL "SEAL-TITE" DEVICES

"SEAL-TITE" RUBBER COVERS FOR TWIST-LOCK CONNECTORS

2-Wire, 3-Wire and 4-Wire Sizes



No. 7510

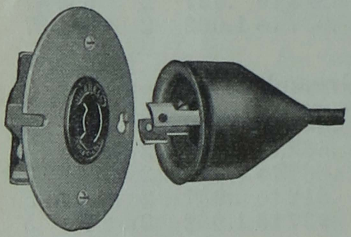
Protection against breakage and moisture. Recommended as Lock-Fast Connectors in packing plants, fire departments, breweries, distilleries, mines, bottling plants, dairies, tunnels and for general industrial requirements.

Cat. No.	Description	Std. Pkg.	Pkg. Wt.
7510	For Nos. 7101 or 7102, 20A, 2-Wire	30	5
7521	Long Cover for No. 7101 when used with No. 7511, below	30	5
7530	For Nos. 7311 or 7313, 20A, 3-Wire	30	6½
7522	Long Cover for No. 7313 when used with No. 7531, below	30	5
7569	For Nos. 7554 or 7555, 10A, 3-Wire	30	5
7435	For Nos. 7411 or 7413, 20A, 4-Wire	20	4

All above, 10 in a carton.

Catalog number covers one-half only, and does not include Connector, Cap or Wire. Two covers are required for each complete connector.

"SEAL-TITE" RUBBER COVERS FOR TWIST-LOCK CAPS USED WITH FLUSH RECEPTACLES

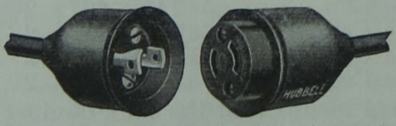


No. 7511

The No. 7511 type Rubber Cover is slightly shorter than those listed above for Cord Connectors, and is designed for use with Twist-Lock flush receptacles with steel box covers or with standard brass flush plates.

Cat. No.	Description	Car- ton	Std. Pkg.	Pkg. Wt.
7511	For No. 7102, 2-Wire Cap	10	30	4
7531	For No. 7311, 3-Wire Cap	10	30	5½
7541	For No. 7411, 4-Wire Cap	10	20	4

"SEAL-TITE" RUBBER COVERS FOR MIDGET TWIST-LOCK CONNECTORS



No. 7470 assembled to No. 7463 Connector

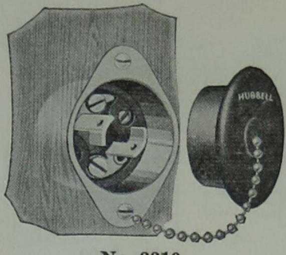
Cat. No.	Description	Car- ton	Std. Pkg.	Pkg. Wt.
7470	Rubber Cover	10	30	3

Catalog Number covers one half only and does not include Connector, Cap or Wire. Two are required for a complete Cord Connector.

HUBBELL "SEAL-TITE" DEVICES

TRAILER FLUSH RECEPTACLES

2-Wire Twist-Lock with "Seal-Tite" Rubber Covers



No. 8810

Rubber Seal-tite Cover is designed to fit snugly into metal casing to keep out dust and moisture when not in use.

No. 7101 Twist-Lock Connector Body is necessary to connect current supply.

Cat. No.	Description	Car- ton	Std. Pkg.	Pkg. Wt.
8810	Receptacle complete with Seal-tite cover	10	30	10
8808	Receptacle, less Seal-tite cover	10	30	6
4895	Separate Seal-tite cover with chain	10	50	4

SHOCK-ABSORBING RUBBER CASING

For 10 Amp., 3-Wire Twist-Lock Connector Bodies

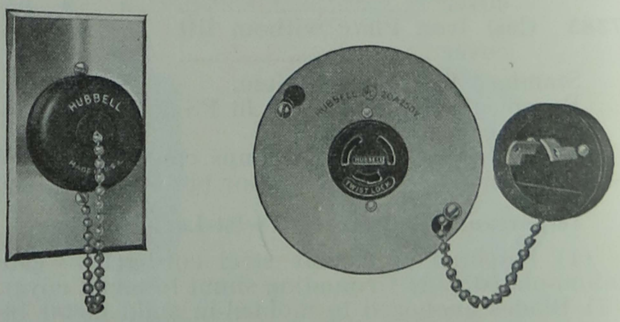
No. 7564

No. 7555 with No. 7564

Cat. No.	Description	Car- ton	Std. Pkg.	Pkg. Wt.
7564	Rubber Casing for Nos. 7555 or 7559 Connector Bodies	10	30	3

"SEAL-TITE" RUBBER CLOSURE PLUGS

For Twist-Lock Receptacles



Cat. No.	Description	Car- ton	Std. Pkg.	Pkg. Wt.
7532	For 2-Wire, 20-Amp. Recept.	10	20	3
7529	For 3-Wire, 10-Amp. Recept.	10	20	3
7533	For 3-Wire, 20-Amp. Recept.	10	20	3
7534	For 4-Wire, 20-Amp. Recept.	10	20	3

The above Closure Plugs are made of high quality rubber and are designed to "seal-tite" 10-amp. and 20-amp. Twist-Lock Flush Receptacles when not in use. Furnished complete with polished nickel chain.

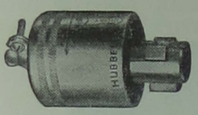
HUBBELLOCK INDUSTRIAL DEVICES

3-WIRE CONNECTORS AND CAPS

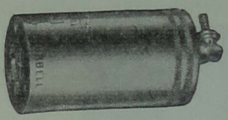
10 Amperes, 250 Volts D.C.; 460 Volts A.C.

20 Amperes, 125 Volts A.C. or D.C.

With Adjustable Cord Grips



No. 23005 (¼ actual size)



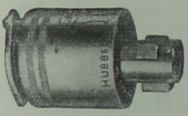
No. 23002

Cat. No.	Description	Cable Diam., In.	Pkg. Wt.
23002	Connector Body	.296—.562	9
23005	Cap	.296—.562	8
23003	Connector Body	.406—.625	9
23006	Cap	.406—.625	8
23009	Connector Body with ½-inch female pipe thread		9
23016	Cap, ½-inch female pipe thread		8

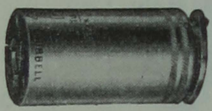
Standard package, 20; carton, 5.

If desired with ground shunt from contact to cover or casing, suffix letter "G" to catalog number.

WITH RUBBER CORD GRIPS



No. 23004 (¼ actual size)



No. 23001

Regularly equipped with ½-inch sponge rubber discs located in neck of steel casings, and a specially designed rubber cord-grip bushing.

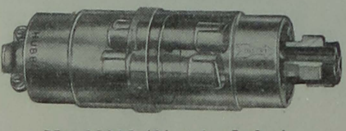
With .484 to .609 Cord Hole

Cat. No.	Description	Cable Diam., In.	Pkg. Wt.
23010	Connector Body	.360—.484	9
23011	Cap	.360—.484	8
23001	Connector Body	.484—.609	9
23004	Cap	.484—.609	8

Standard package, 20; carton, 5.

3-WIRE FUSIBLE CAPS

0-15 Amperes, 250 Volts



No. 23026 (¼ actual size)

Cat. No.	Description	Cable Diam., In.	Pkg. Wt.
23028	Rubber Grip Cap	.360 to .484	16
23025	Rubber Grip Cap	.484 to .609	16
23026	Adjustable Metal Grip Cap	.296 to .562	16
23027	Adjustable Metal Grip Cap	.406 to .625	16

Standard package, 20; carton, 5.

Will receive two standard 0-15 Amp., 250V cartridge fuses, or two Bussmann Fusetrons.

All 3-wire Hubbellocks regularly shipped ungrounded. If desired with ground shunt from contact to cover or casing, suffix letter "G" to catalog number.

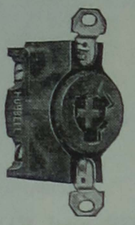
Standard Finish is Cadmium.

HUBBELLOCK INDUSTRIAL DEVICES

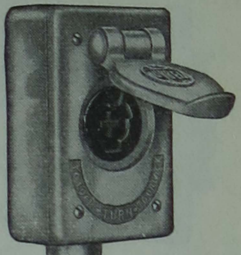
3-WIRE POLARIZED RECEPTACLE AND PLATE

10 Amperes, 250 Volts D.C.; 460 Volts A.C.

20 Amperes, 125 Volts A.C. or D.C.



No. 23000
(¼ actual size)



Nos. 23000-23007
***Assembled to Box**

Receptacle and Plate will fit FS and FD Boxes.

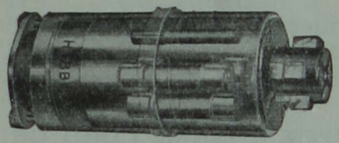
Cat. No.	Description	Wt. Lbs. Std. Pkg.
23000	3-Wire Bakelite Receptacle	8
23007	Cast Iron Plate with Lift Cover	13
23008	Cast Iron Plate without Lift Cover	10

Standard package, 20; carton, 5.

*Outlet box not supplied. Fits any single convenience outlet plate. Receptacle will also fit standard switch outlet boxes.

If desired grounded, add suffix "G" to catalog number.

4-WIRE FUSIBLE CAPS



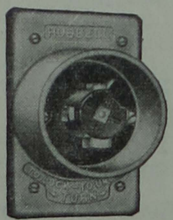
No. 21421 (¼ actual size)

Cat. No.	Description	Cable Diam., In.	Pkg. Wt.
21421	Rubber Grip Cap	.360 to .484	14
21431	Rubber Grip Cap	.484 to .609	14
21432	Rubber Grip Cap	.609 to .750	14
21422	Rubber Grip Cap	.750 to 1.000	14
20421	Adj. Metal Grip Cap	.400 to .750	14

Standard package, 10; carton, 2.

Will receive three standard 0-30 Amp., 250 V. cartridge fuses, or three Bussman Fusetrons.

4-WIRE MOTOR PLUG BASES

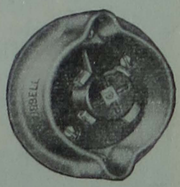


No. 20418

***20 Amperes**

250 Volts D.C.

These devices are furnished complete as illustrated.



No. 20420

Cat. No.	Description	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
20418	For FS and FD Boxes	2	10	16
20420	For 3¼-inch Outlet Boxes	2	10	16

*See H.P. Rating on following page.

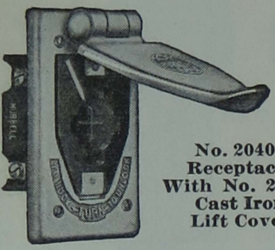
Standard Finish is Cadmium.

HUBBELLOCK INDUSTRIAL DEVICES

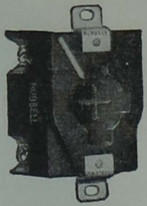
4-WIRE RECEPTACLE AND PLATES

***20 Amp., 250 Volts D.C.—30 Amp., 600 Volts A.C.**

*3 H.P. 250 D.C.
10 H.P. 230 A.C. 2 Phase
5 H.P. 230 A.C. 1 Phase
15 H.P. 460 A.C. 3 Phase



No. 20403 Receptacle With No. 20416 Cast Iron Lift Cover



No. 20403 Receptacle

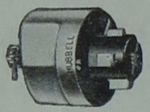
Receptacle and Plate will fit FS and FD Boxes.

Cat. No.	Description	Wt. Lbs. Std. Pkg.
20403	Bakelite Receptacle	5
20416	Iron Plate with Lift Cover	9
20417	Iron Plate without Lift Cover	4

Standard package, 10; carton, 2.

4-WIRE CONNECTORS AND CAPS

With Metal Adjustable Cord Grip



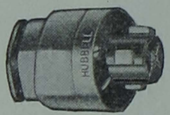
No. 20415 Cap

No. 20414 Connector Body

Cat. No.	Description	Cable Diam., In.	Pkg. Wt.
20414	Connector Body	.400—.750	10
20415	Cap	.400—.750	7

Standard package, 10; carton, 2.

WITH RUBBER CORD GRIPS



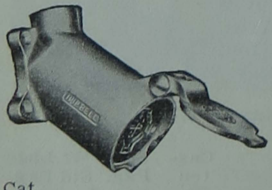
No. 21415 Cap

No. 21414 Connector Body

Cat. No.	Description	Cable Diam., In.	Pkg. Wt.
21414	Connector Body	.360—.484	10
21424	Connector Body	.484—.609	10
21427	Connector Body	.609—.750	10
21418	Connector Body	.750–1.000	10
21415	Cap	.360—.484	7
21425	Cap	.484—.609	7
21426	Cap	.609—.750	7
21419	Cap	.750–1.000	7

Standard package, 10; carton, 2.

ANGLE WEATHERPROOF RECEPTACLES



***20 Amp., 250 Volts D.C.
30 Amp., 600 Volts A.C.**

Takes any of the caps or connectors bodies listed above.

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
21420	Female, with spring cover	2	10	34
21447	Male, with spring cover	2	10	34

Standard finish is cadmium.

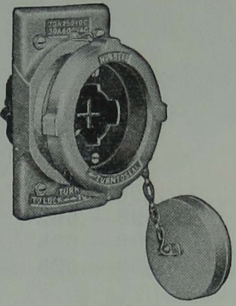
HUBBELLOCK INDUSTRIAL DEVICES

4-WIRE WATERTIGHT DEVICES

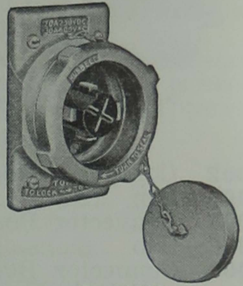
With Rubber Cord Grips

***20 Amp., 250 Volts D.C.—30 Amp., 600 Volts A.C.**

*3 H.P. 250 D.C.
10 H.P. 230 A.C. 2 Phase
5 H.P. 230 A.C. 1 Phase
15 H.P. 460 A.C. 3 Phase



No. 22427



No. 22428

Female Receptacle and Caps

Cat. No.	Description	Cable Diam., In.	Carton	Std. Pkg.	Pkg. Wt.
22427	Female Receptacle with Bronze Plate and Sealing Ring		2	10	15
22415	Male Cap	.360 to .484	2	10	7
22425	Male Cap	.484 to .609	2	10	9
22422	Male Cap	.609 to .750	2	10	11
22419	Male Cap	.750 to 1.000	2	10	11

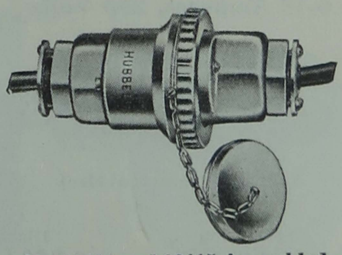
Male Receptacle and Bodies

Cat. No.	Description	Cable Diam., In.	Carton	Std. Pkg.	Pkg. Wt.
22428	Male Receptacle with Bronze Plate and Sealing Ring		2	10	15
22429	Connector Body	.360 to .484	2	10	28
22430	Connector Body	.484 to .609	2	10	30
22431	Connector Body	.609 to .750	2	10	32
22432	Connector Body	.750 to 1.000	2	10	32

Receptacle and plate will fit FS and FD boxes.

WATERTIGHT CONNECTORS

With Rubber Cord Grips



No. 22414 and 22415 Assembled (⅓ actual size)

Cat. No.	Description	Cable Diam., In.	Carton	Std. Pkg.	Pkg. Wt.
22414	Connector Body	.360 to .484	2	10	28
22424	Connector Body	.484 to .609	2	10	30
22426	Connector Body	.609 to .750	2	10	32
22418	Connector Body	.750 to 1.000	2	10	32
22415	Cap	.360 to .484	2	10	7
22425	Cap	.484 to .609	2	10	9
22422	Cap	.609 to .750	2	10	11
22419	Cap	.750 to 1.000	2	10	11

All 4-wire Hubbellocks are furnished "grounded" unless otherwise specified.

HUBBELL TOGGLE SWITCHES

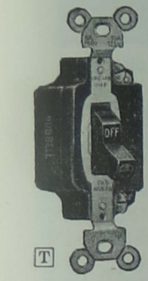
FLUSH TOGGLE SWITCHES

With "T" Rating for Type C Lamp Loads

Enclosed Bakelite Base

Will fit 1½-inch switch boxes.

Both brown and black handles are standard; brown will be furnished unless otherwise specified. If desired grounded suffix letter "G" to catalog number.



No. 9801

With Bakelite Handles

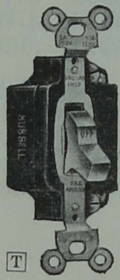
Cat. No.	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
9801	S.P., Ind.	10	5	10	50	12
9802	D.P., Ind.	10	10	10	10	3
9803	3-Way	10	5	10	20	6
9933	3-Way	20	10	10	10	3
9804	4-Way	5	2	10	10	3
9805	S.P., Ind.	20	10	10	10	3
9806	D.P., Ind.	20	10	10	10	3

With Metal Handles

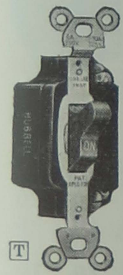
Cat. No.	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
7901	S.P., Ind.	10	5	10	50	14
7902	D.P., Ind.	10	10	10	10	3
7903	3-Way	10	5	10	20	6
9623	3-Way	20	10	10	10	4
7904	4-Way	5	2	10	10	4
7905	S.P., Ind.	20	10	10	10	4
7906	D.P., Ind.	20	10	10	10	4

Regularly supplied grounded.

Standard finish is brush brass.



No. 7901



No. 7701

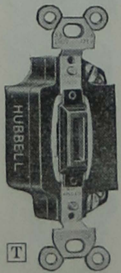
With Rubber Handles

Cat. No.	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
7701	S.P., Ind.	10	5	10	50	12
7702	D.P., Ind.	10	10	10	10	3
7703	3-Way	10	5	10	20	6
7704	4-Way	5	2	10	10	3
7705	S.P., Ind.	20	10	10	10	3
7706	D.P., Ind.	20	10	10	10	3

Locking Type with Enclosed Bakelite Base

One 8965 key furnished with each switch.

Cat. No.	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
9701	S.Pole	10	5	10	50	12
9702	D.Pole	10	10	10	10	3
9703	3-Way	10	5	10	20	4
9613	3-Way	20	10	10	10	3
9704	4-Way	5	2	10	10	3
9705	S.Pole	20	10	10	20	8
9706	D.Pole	20	10	10	10	3
8965	Key	----	----	----	100	2



No. 9701

HUBBELL TOGGLE SWITCHES

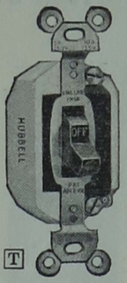
FLUSH TOGGLE SWITCHES

With "T" Rating for Type C Lamp Loads

Strong Gray Porcelain Base

Will fit in 1½-inch switch boxes.

Both brown and bakelite handles are standard. Brown furnished unless otherwise specified. If desired grounded suffix letter "G" to catalog number.



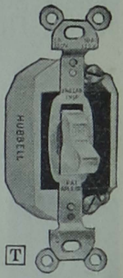
No. 8801

With Square Bakelite Handle

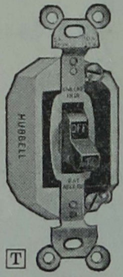
Cat. No.	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
8801	S.P., Ind.	10	5	10	100	34
8941	S.P., Ind.	....	20	10	50	3
8942	D.P., Ind.	....	20	10	20	13
8802	D.P., Ind.	10	10	10	50	19
8803	3-Way	10	5	10	50	19
8804	4-Way	5	2	10	10	5

With Metal Handles

Cat. No.	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
7801	S.P., Ind.	10	5	10	100	38
7802	D.P., Ind.	10	10	10	50	19
7842	D.P., Ind.	....	20	10	20	14
7803	3-Way	10	5	10	50	20
7804	4-Way	5	2	10	10	5
7805	S.P., Ind.	....	20	10	10	5



No. 7801



No. 7601

With Rubber Handles

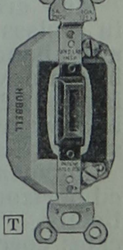
Cat. No.	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
7601	S.P., Ind.	10	5	10	100	34
7602	D.P., Ind.	10	10	10	50	20
7603	3-Way	10	5	10	50	19
7604	4-Way	5	2	10	10	4
7605	S.P., Ind.	....	20	10	10	4

Locking Type—With Porcelain Base

For Use with Standard Rectangular Opening Switch Plates

Has special locking feature which prevents unauthorized manipulation of the switch except by possessor of No. 8965 key.

One key furnished with each locking switch. Brush brass and black standard finishes on keyway. Brush brass furnished unless otherwise specified. Regularly supplied grounded.

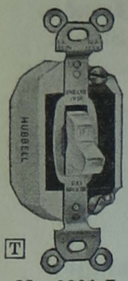


No. 8961

Cat. No.	Description	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.
8961	S.P., Locking....	10	5	10	100	34
8962	D.P., Locking ..	10	10	10	50	19
8963	3-Way, Locking	10	5	10	50	18
8964	4-Way, Locking	5	2	10	10	4
8965	Key	....	....	....	100	2

HUBBELL TOGGLE SWITCHES

IVORINE FLUSH TOGGLE SWITCHES



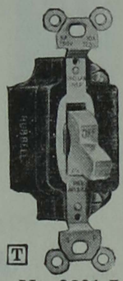
No. 8801-I

No. 8801 Line—With Porcelain Base, Ivorine Handle—T Rated

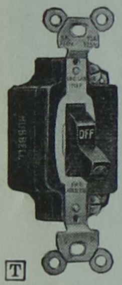
Cat. No.	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
8801-I	S.P., Ind.	10	5	10	50	19
8941-I	S.P., Ind.	....	20	10	10	6
8942-I	D.P., Ind.	....	20	10	10	7
8802-I	D.P., Ind.	10	10	10	25	10
8803-I	3-Way	10	5	10	25	10
8804-I	4-Way	5	2	10	10	8

No. 9801 Line—With Bakelite Base and Ivorine Handle

Cat. No.	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
9801-I	S.P., Ind.	10	5	10	25	7
9802-I	D.P., Ind.	10	10	10	10	8
9803-I	3-Way	10	5	10	10	7
9933-I	3-Way	20	10	10	10	7
9804-I	4-Way	5	2	10	10	6
9805-I	S.P., Ind.	20	10	10	10	7
9806-I	D.P., Ind.	20	10	10	10	8



No. 9801-I



No. 9601

MOMENTARY CONTACT SWITCHES

Enclosed Bakelite Base and Bakelite Handle—T Rated

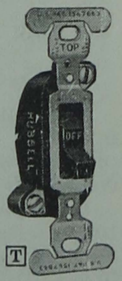
These switches are of the same construction as the 9801 line, but have the momentary contact feature. Furnished either normally open or normally closed.

Cat. No. Normally Closed	Cat. No. Normally Open	Description	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
9601	**9901**	S.P., Ind.	10	5	10	50	13
9602	**9902**	D.P., Ind.	10	10	10	10	4
....	**9903**	3-Way	10	5	10	20	8

SPHINX MERCURY FLUSH SWITCHES

5 Amp., 250 V.—5 Amp., 125 V.—T

(T Rating on 125 Volts only) AC or DC



No. 9711

Any arcing is completely enclosed in a glass sealed metal button. Operating handles are of brown or Ivorine bakelite with "on" and "off" markings. These switches can be installed in any standard switch box and fit any standard switch plate.

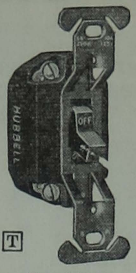
Important: Switch cannot be mounted horizontally; must be mounted vertically. "Top" on one support indicates correct mounting position.

Style	Carton	Brown Cat. No.	Brown Std. Pkg.	Brown Pkg. Wt.	Ivorine Cat. No.	Ivorine Std. Pkg.	Ivorine Pkg. Wt.
S.P., Ind.	10	**9711**	100	21	**9711-I**	50	11
D.P., Ind.	10	**9712**	50	14	**9712-I**	30	9
3-Way	10	**9713**	50	14	**9713-I**	30	9
4-Way	2	**9714**	10	3	**9714-I**	10	3

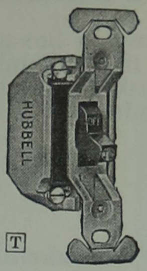
HUBBELL TOGGLE SWITCHES

RECESSED FLUSH TOGGLE SWITCHES

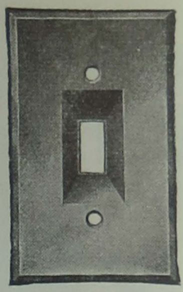
T Rating on 125 Volts Only



No. 9841



No. 8901



No. 8911

With Bakelite Base and Bakelite Handle

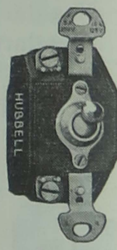
Cat. No.	Description	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
9841	S.P., Indicating	10	5	10	50	12
9842	D.P., Indicating	10	10	10	10	3
9843	3-Way	10	5	10	20	6
9844	4-Way	5	2	10	10	3

With Porcelain Base and Bakelite Handle

Cat. No.	Description	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
8901	S.P., Indicating	10	5	10	100	32
8902	D.P., Indicating	10	10	10	50	20
8903	3-Way	10	5	10	50	19
8904	4-Way	5	2	10	10	8
8911	.060" Brass Plate	....	....	10	100	28

Gang plates made up on special order. Prices on request. If desired with ground shunt to frame, suffix letter "G". If wanted with Ivorine handles, suffix letter "I" to catalog number and add **$1.00** per hundred list.

ROUND METAL HANDLE FLUSH TOGGLE SWITCHES



No. 8121

Standard finish on handle is brush brass. Regularly supplied grounded. Handles may be finished to match plates.

Cat. No.	Description	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Pkg. Wt.
8121	Single Pole............	10	5	10	50	20
8122	Double Pole..........	....	10	10	10	6
8132	Double Pole..........	....	20	10	10	9
8123	3-Way	10	5	10	20	10
8124	4-Way	5	2	10	10	9

PUSH BUTTON SWITCHES

No. 4401

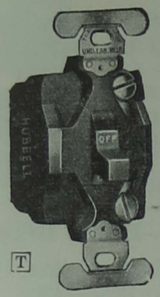
Cat. No.	Style	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Pkg. Wt.
4401	S.P.	10	5	10	100	32
4402	D.P.	....	10	10	50	19
4403	3-Way..	10	5	10	50	18
4404	4-Way..	5	2	10	10	5
	Lock Type					
4401L	S.P.	10	5	10	100	32
4402L	D.P.	....	10	10	50	19
4403L	3-Way..	10	5	10	50	18
4404L	4-Way..	5	2	10	10	5
4405	Key	....	....	20	100	1

One key is furnished with each Lock Switch.

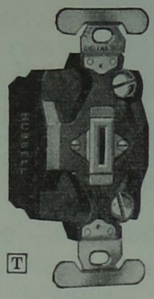
HUBBELL TOGGLE SWITCHES

HEAVY DUTY FLUSH TOGGLE SWITCHES

T Rated for 125 Volts Only

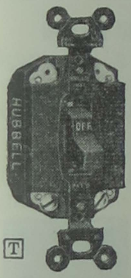


No. 2971



No. 2971-L

Cat. No. Std. Type	Cat. No. Lock Type	Style	Amperes 125 V.T.	Amperes 250 V.	Carton	Std. Pkg.	Pkg. Wt.
2971	2971-L	S.P.	20	20	10	30	20
2972	2972-L	D.P.	20	20	2	10	6
2973	2973-L	3-Way	20	20	2	10	6
2974	2974-L	4-Way	20	10	2	10	4
2923	2923-L	S.P.	30	30	10	30	20
2924	2924-L	D.P.	30	30	2	10	6
2925	2925-L	3-Way	30	30	2	10	6
2926	2926-L	4-Way	20	10	2	10	4
	2308	Key	....	....	10	100	2



No. 9815

20 AMPERE SHALLOW FLUSH TOGGLE SWITCHES

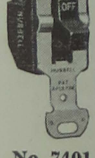
20 Amp., 125 Volt "T"

20 Amp., 250 Volt

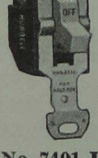
Cat. No. Bakelite Handle	Cat. No. Metal Handle	Cat. No. Rubber Handle	Description	Carton	Std. Pkg.	Pkg. Wt.
9815	7815	7615	S.P., Ind.	10	30	7
9815-I	....	....	S.P., Ivorine	10	10	3
9816	7816	7616	D.P., Ind.	2	10	4
9816-I	....	....	D.P., Ivorine	2	10	4
9943	7843	7643	3-Way	2	10	4
9943-I	....	....	3-W., Ivorine	2	10	4

RESIDENTIAL TYPE BAKELITE FLUSH TOGGLE SWITCHES

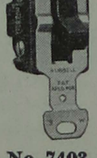
10 Amp., 125 Volts—5 Amp., 250 Volts



No. 7401



No. 7401-I



No. 7403

Will fit in 1½-inch switch boxes. Supporting screw holes spaced 3 9/32 inches on centers.

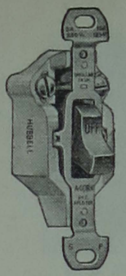
Cat. No.	Description	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Pkg. Wt.
7401	S.P. Indicating	10	5	10	100	34
7401-I	S.P. Ivorine	10	5	10	100	34
7403	3-Way	10	5	10	50	19
7403-I	3-Way, Ivorine.....	10	5	10	50	19

HUBBELL TOGGLE SWITCHES

ACORN FLUSH TOGGLE SWITCHES

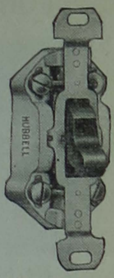
Bakelite Handle

10 A., 125 V.—5 A., 250 V.



No. 9991

Cat. No.	Type	Carton	Std. Pkg.	Pkg. Wt.
9991	S.P. In.	10	100	26
9993	3-Way	10	50	15
	Ivorine			
9991-I	S.P. Ind.	10	50	14
9993-I	3-Way	10	25	8



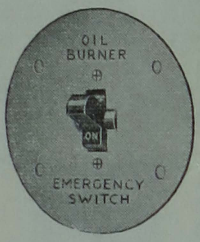
No. 9993

HUBBELL TOGGLE SWITCHES

RESIDENTIAL TYPE BAKELITE FLUSH TOGGLE SWITCHES

For 3¼ and 4-inch Outlet Boxes

No. 7441



No. 7444

10 Amp., 125 Volts—5 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Wt. Std. Pkg.
7441	Single Pole, 3¼-inch Cover..	10	50	21
7443	Three-Way, 3¼-inch Cover..	10	50	21
7451	Single Pole, 4-inch Cover......	10	50	25
7453	Three-Way, 4-inch Cover......	10	50	25
7444	S.P. Oil Burner Switch on 3¼-inch Red Cover	10	50	18
7445	S.P. Oil Burner Switch on 4-inch Red Cover..............	10	50	25

SURFACE TOGGLE SWITCHES

Metal Handles

No. 8171

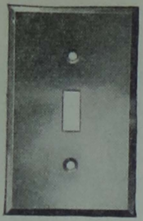
Brush brass and nickel plate are standard for switch covers. Brush brass covers furnished unless otherwise specified. Black porcelain base. Screw holes are elongated. Screw spacings, 1½ to 1 21/32 inches. Outside diameter of base, 2¼ inches.

Cat. No.	Description	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.
8171	S.P., Solid	5	3	10	100	37
8191	S.P., Slotted	5	3	10	100	37
8421	S.P., Solid	10	5	10	100	37
8431	S.P., Slotted	10	5	10	100	37
8173	3-Way, Solid......	5	3	10	100	37
8193	3-Way, Slotted..	5	3	10	100	37
	***10-Ampere Double Pole and 3-Way**					
8112	D.P., Solid	....	10	10	100	67
8162	D.P., Slotted......	....	10	10	100	58
8153	3-Way, Solid......	10	5	10	50	20
8233	3-Way, Slotted..	10	5	10	50	37

*Black porcelain base. Screw holes are elongated. Screw spacings, 1 21/32 to 1 25/32 inches. Outside diameter of base, 2⅝ inches.

HUBBELL BRASS FLUSH PLATES

FOR TOGGLE AND PUSH SWITCHES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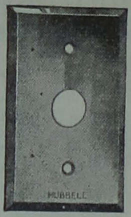
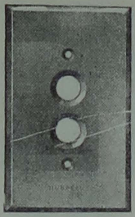


No. 8651


No. 8511

Struck-Up—.040-Inch Metal

For Toggle Switches		For Push Switches	Description	Pkg. Wt.
Standard	For 8121 Line			
		Brush Brass Finish		
8771	**8651**	**8511**	Single Plate	15
8772	**8652**	**8512**	2-Gang Plate	16
8773	**8653**	**8513**	3-Gang Plate	14
8774	**8654**	**8514**	4-Gang Plate	13
8775	....	**8515**	5-Gang Plate	12
8776	....	**8516**	6-Gang Plate	10
8777	....	**8517**	7-Gang Plate	9
8778	....	**8518**	8-Gang Plate	7
		Lacco Brass Finish		
8781	**8661**	**8521**	Single Plate	17
8782	**8661**	**8522**	2-Gang Plate	18
8783	**8663**	**8523**	3-Gang Plate	14
8784	**8664**	**8524**	4-Gang Plate	13
8785	....	**8525**	5-Gang Plate	12
8786	....	**8526**	6-Gang Plate	10
8787	....	**8527**	7-Gang Plate	9
8788	....	**8528**	8-Gang Plate	7

Struck-Up—.060-Inch Metal

Brush Brass Finish

8751	**8291**	**8551**	Single Plate	30
8752	**8292**	**8552**	2-Gang Plate	28
8753	**8293**	**8553**	3-Gang Plate	25
8754	**8294**	**8554**	4-Gang Plate	23
8755	....	**8555**	5-Gang Plate	22
8756	....	**8556**	6-Gang Plate	20
8757	....	**8557**	7-Gang Plate	18
8758	....	**8558**	8-Gang Plate	16

Solid Brass—.100-Inch Metal

Brush Brass Finish

8761	**8301**	**8571**	Single Plate	16
8762	**8302**	**8572**	2-Gang Plate	28
8763	**8303**	**8573**	3-Gang Plate	26
8764	**8304**	**8574**	4-Gang Plate	24
8765	....	**8575**	5-Gang Plate	23

Solid Brass—.100-Inch Metal—Tandem

Brush Brass Finish

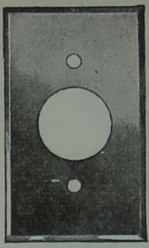
8795	**8672**	**8592**	2-Gang Plate	28
8796	**8673**	**8593**	3-Gang Plate	26
8797	**8674**	**8594**	4-Gang Plate	24

A standard package of switch plates consists of 100 single plates or equivalent in gangs. Carton quantity is 10 gangs.

Plates in Brush Brass, Lacco or special finishes may be assorted to make standard package or carton quantity.

Special features and special finishes, prices on request.

HUBBELL BRASS FLUSH PLATES


No. 6835

BRASS FLUSH PLATES FOR SINGLE CONVENIENCE OUTLETS

Any of these plates may be assorted for standard package or carton quantity.

Special finishes and special features, prices on request.

Struck-Up—.040-Inch Metal—Brush Brass

Cat. No.	Description	Dimens., Inches	Carton	Std. Pkg.	Pkg. Wt.
6835	Single Plate	4½x2¾	10	100	17
6836	2-Gang Plate	4½x4 9/16	*	†	15
6837	3-Gang Plate	4½x6⅜	*	†	14
		Lacco Brass Finish			
6780	Single Plate	4½x2¾	10	100	16
6838	2-Gang Plate	4½x4 9/16	*	†	15
6839	3-Gang Plate	4½x6⅜	*	†	14

Struck-Up—.060-Inch Metal—Brush Brass

5548	Single Plate	4½x2¾	10	100	25
5549	2-Gang Plate	4½x4 9/16	*	†	22
6840	3-Gang Plate	4½x6⅜	*	†	20

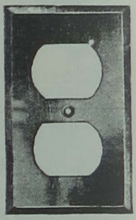
Solid Brass—.100-Inch Metal—Brush Brass

6585	Single Plate	4½x2¾	10	......	32
6586	2-Gang Plate	4½x4 9/16	*	......	26
5550	3-Gang Plate	4½x6⅜	*	......	23

BRASS FLUSH PLATES FOR DUPLEX CONVENIENCE OUTLETS

Any of these plates may be assorted for standard package or carton quantity.

Special finishes and special features, prices on request.


No. 6854

Struck-Up—.040-Inch Metal—Brush Brass

Cat. No.	Description	Dimens., Inches	Carton	Std. Pkg.	Pkg. Wt.
6854	Single Plate	4½x2¾	10	100	16
6855	2-Gang Plate	4½x4 9/16	*	†	15
6856	3-Gang Plate	4½x6⅜	*	†	14
		Lacco Brass Finish			
6784	Single Plate	4½x2¾	10	100	14
6857	2-Gang Plate	4½x4 9/16	*	†	13
6858	3-Gang Plate	4½x6⅜	*	†	12

Struck-Up—.060-Inch Metal—Brush Brass

6258	Single Plate	4½x2¾	10	100	21
6259	2-Gang Plate	4½x4 9/16	*	†	18
6859	3-Gang Plate	4½x6⅜	*	†	15

Solid Brass—.100-Inch Metal—Brush Brass

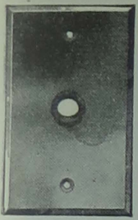
6587	Single Plate	4½x2¾	10	100	30
6588	2-Gang Plate	4½x4 9/16	*	†	25
6260	3-Gang Plate	4½x6⅜	*	†	22

†A standard package consists of 100 single plates or equivalent in gangs.

*A carton quantity is 10 gangs.

HUBBELL BRASS FLUSH PLATES

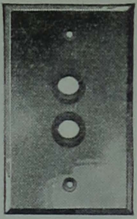
SINGLE AND DOUBLE OUTLET TELEPHONE PLATES



No. 6904

All kinds of telephone plates may be assorted to make standard package or carton quantity.

Furnished with adapter to 3$\frac{9}{32}$ inches.

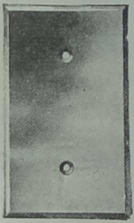


No. 6935

Struck-Up—.040-Inch Metal—Brush Brass

Cat. No. Single	Cat. No. Double	Description	Dimens., Inches	Pkg. Wt.
6904	6935	Single Plate	4½x2¾	8
6905	6936	2-Gang Plate	4½x4$\frac{9}{16}$	7
6906	6937	3-Gang Plate	4½x6⅜	7
Lacco Brass Finish				
6907	6938	Single Plate	4½x2¾	8
6908	6939	2-Gang Plate	4½x4$\frac{9}{16}$	7
6909	6940	3-Gang Plate	4½x6⅜	7
Struck-Up—.060-Inch Metal—Brush Brass				
6910	6941	Single Plate	4½x2¾	12
6911	6942	2-Gang Plate	4½x4$\frac{9}{16}$	10
6912	6943	3-Gang Plate	4½x6⅜	9
Solid Brass—.100-Inch Metal—Brush Brass				
6923	6947	Single Plate	4½x2¾	21
6924	6948	2-Gang Plate	4½x4$\frac{9}{16}$	19
6925	6949	3-Gang Plate	4½x6⅜	18

A standard package consists of 50 single plates or equivalent in gangs. Carton quantity is 10 gangs.



No. 6959

BLANK PLATES

Screw spacings 2⅜ inches on centers.

Special finishes and special features are available, prices on request.

Struck-Up—.040-Inch Metal—Brush Brass

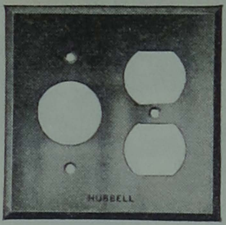
Cat. No.	Description	Dimens., Inches	Carton	Std. Pkg.	Pkg. Wt.
6959	Single Plate	4½x2¾	10	50	9
6960	2-Gang Plate	4½x4$\frac{9}{16}$	*	†	8
6961	3-Gang Plate	4½x6⅜	*	†	8
Lacco Brass Finish					
6785	Single Plate	4½x2¾	10	50	9
6962	2-Gang Plate	4½x4$\frac{9}{16}$	*	†	8
6963	3-Gang Plate	4½x6⅜	*	†	8
Struck-Up—.060-Inch Metal—Brush Brass					
6964	Single Plate	4½x2¾	10	50	13
6965	2-Gang Plate	4½x4$\frac{9}{16}$	*	†	11
6966	3-Gang Plate	4½x6⅜	*	†	10
Solid Brass—.100-Inch Metal—Brush Brass					
6970	Single Plate	4½x2¾	10	----	22
6971	2-Gang Plate	4½x4$\frac{9}{16}$	*	----	18
6972	3-Gang Plate	4½x6⅜	*	----	16

†A standard package consists of 50 single plates or equivalent in gangs.

*A carton quantity is 10 gangs.

HUBBELL BRASS FLUSH PLATES

COMBINATION BRASS PLATES



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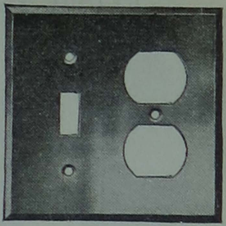


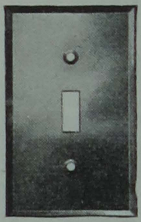
No. 7105

For Single and Duplex Convenience Outlets

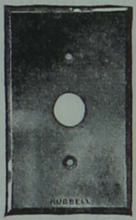
Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
7040	Single and Duplex, .040 inch	2	10	3
6749	Single and Duplex, .060 inch	2	10	5
For Toggle Switch and Duplex Convenience Outlets				
7105	Switch and Duplex, .040 inch	2	10	3
7108	Switch and Duplex, .060 inch	2	10	5

CHROMIUM FINISHED BRASS PLATES

.040-Inch Metal



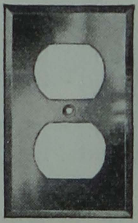
No. 4151-D



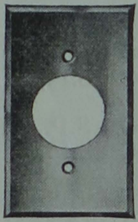
No. 4161-D

For Standard Toggle Switches

Cat. No. Dull Finished	Cat. No. Polished Finished	Description	Carton	Std. Pkg.	Pkg. Wt.
4151-D	4151-P	1-Gang	10	100	15
4152-D	4152-P	2-Gang	*	-----	16
4153-D	4153-P	3-Gang	*	-----	14
4154-D	4154-P	4-Gang	*	-----	13
For No. 8121 Round Handle Toggle Switches					
4161-D	4161-P	1-Gang	10	100	15



No. 4150-D



No. 4155-D

For Duplex Outlets

Cat. No. Dull Finished	Cat. No. Polished Finished	Description	Carton	Std. Pkg.	Pkg. Wt.
4150-D	4150-P	1-Gang	10	100	16
For Single Outlets					
4155-D	4155-P	1-Gang	10	100	17

A standard package consists of 100 single plates or the equivalent in gangs.

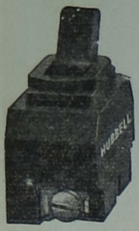
*A carton quantity is 10 gangs.

100 gangs may be assorted in carton quantities to make a standard package. These plates are not assorted with other plates, either brass or bakelite, to make a standard package quantity.

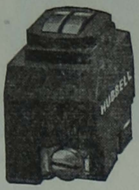
For chromium-plated gang plates larger than those listed above, prices will be supplied on request.

HUBBELL INTERCHANGEABLE WIRING DEVICE LINE

FLUSH TOGGLE SWITCHES


No. 1311

Nos. 1312-1313


No. 1311-L

From only 20 basic devices and an assortment of wall plates as listed, many combinations of wiring devices can be made.

These units are of a size which allows the installation of three devices in a single-gang switch box They may be wired with either common or separate feed. These switches will satisfactorily handle Type "C" Lamp loads and carry Underwriters' "T" Rating as shown below.

The handle and strap are insulated from the mechanism. The front and back are enclosed—thoroughly dust-proof.

Brown Bakelite

Cat. No. Standard Type	Cat. No. Lock Type	Type	Amperes 125V.	Amperes 250V.	Carton	Std. Pkg.	Pkg. Wt.
1311	**1311-L**	S-Pole	10T	5	10	100	11
1312	**1312-L**	2-Pole	10T	10	2	10	2½
1313	**1313-L**	3-Way	10T	5	10	50	8
1314	**1314-L**	4-Way	5T	2	2	10	2½
....	**1499**	Key only	..	..	1	1	1/16
		Ivorine					
1411	**1411-L**	S-Pole	10T	5	10	50	6
1412	**1412-L**	2-Pole	10T	10	2	10	2½
1413	**1413-L**	3-Way	10T	5	10	30	3
1414	**1414-L**	4-Way	5T	2	2	10	2½

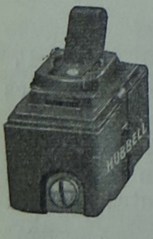
MOMENTARY CONTACT SWITCHES

10 Amp., 125 Volts—5 Amp., 250 Volts

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
Brown				
1311-MO	S.P., Cir. Normally Open..	2	10	2½
1311-MC	S.P., Cir. Normally Closed	2	10	2½
Ivorine				
1411-MO	S.P., Cir. Normally Open..	2	10	2½
1411-MC	S.P., Cir. Normally Closed	2	10	2½

RESIDENTIAL TYPE FLUSH TUMBLER SWITCHES

Bakelite—Totally Enclosed


No. 1391

10 Amp., 125V.—5 Amp., 250V.

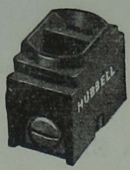
Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
	Brown Bakelite			
1391	Single Pole	10	100	9
1393	3-Way	10	50	5
	Ivorine			
1491	Single Pole	10	50	5
1493	3-Way	10	30	3

Single Pole 15-ampere 1311 and 1391 type switches for special appliance application can be furnished and prices will be quoted on request.

HUBBELL INTERCHANGEABLE WIRING DEVICE LINE

CONVENIENCE OUTLETS AND ATTACHMENT PLUG CAPS

15 Amp., 125 Volts—10 Amp., 250 Volts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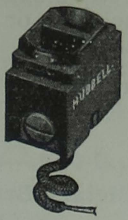
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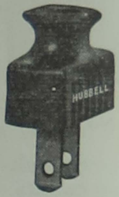
No. 1372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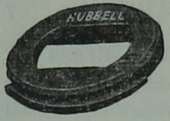
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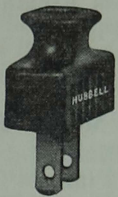
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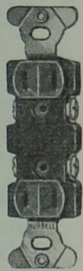
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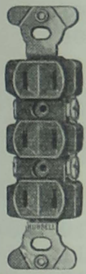
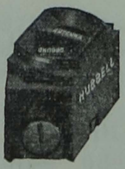

No. 13203

Single Convenience Outlets

Cat. No. Brown	Cat. No. Ivorine	Description	Carton	Std. Pkg. Brown	Std. Pkg. Ivorine
1320	**1420**	Parallel Slots........	10	100	100
1341	**1441**	Pilot Light Outlet	10	30	20
1327	**1427**	Insulating Adapter	10	50	30
		Duplex and Triplex Convenience Outlets			
13202	**14202**	Duplex, Parallel..	10	100	50
13203	**14203**	Triplex, Parallel..	10	100	50
		Bakelite Attachment Plug Caps			
1321	**1421**	Parallel Blades*..	10	100	50
1326	**1426**	Parallel Blades, Poarized*	10	100	50
		Black Rubber Attachment Plug Cap			
1372	....	2-Piece, Parallel..	25	100	.....

*Rectangular, 9/32-inch cord hole.

RADIO OUTLETS AND CAPS


No. 1322

No. 1323

Outlet can be installed in any outlet box singly, in multiple, or with other Interchangeable devices. Cap blades are set at an angle which prevents insertion in power slots. No. 1346 box divider keeps the antenna and ground wires separate from power circuit.

For Antenna and Ground Connections

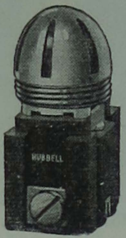
Cat. No. Brown	Cat. No. Ivorine	Description	Carton	Std. Pkg.	Pkg. Wt.
1322	**1422**	Radio Outlet	2	10	1
1323	**1423**	Radio Cap	2	10	1

The correct style of mounting strap is furnished, without charge, for installing the above devices. Packed with each Interchangeable plate.

HUBBELL INTERCHANGEABLE WIRING DEVICE LINE

COMBINATION DEVICES

No. 1339


No. 1340

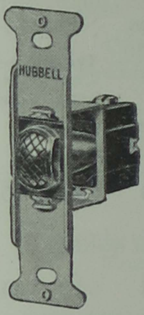
Night Lights with Clear Lamps

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
1339	With Chromium Plated Refl.	10	30	5
1339B	With Brush Brass Reflector	10	30	5

Pilot Lights with Red Lamps

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
1340	With Chromium Plated Hood	10	30	5
1340B	With Brush Brass Hood	10	30	5

FLUSH PILOT LIGHTS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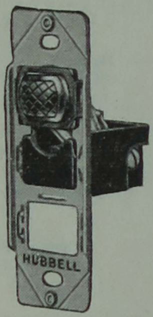
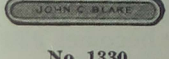

No. 1377

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
1376	Single Pilot Light with Red Jewel	10	30	7
1377	Comb. Pilot Light for use with Switch or Outlet, in any Two Opening Plate	10	30	7

NAME PLATE, BELL PUSH AND BLANK



No. 1330

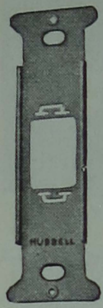
No. 1344

No. 1345

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
1330	Name Plate (Stainless Steel Frame)	10	30	¼
1330–1	Name Plate (Brush Brass Frame)	10	30	¼
1344	Bell Push for 6 to 12 Volt Circuits	10	20	2
1345	Blank Insert or Cord Hole for Wall Plates	5	10	1
	Ivorine			
1444	Bell Push for 6 to 12 Volt Circuits	5	10	1
1445	Blank Insert of Cord Hole for Wall Plates	5	10	1

HUBBELL INTERCHANGEABLE WIRING DEVICE LINE

ACCESSORIES AND BOX COVERS



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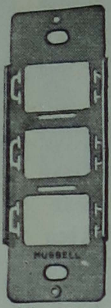

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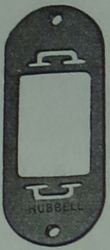

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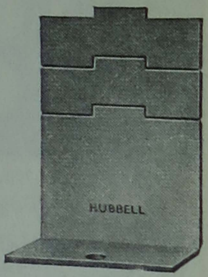


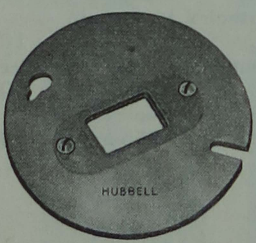
No. 1346

Mounting Straps and Box Divider

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
1343	Chromium-Plated Hood only for No. 1340	10	30	2
1343-B	Brush Brass Hood only for No. 1340-B	10	30	2
1347	Single Opening Mounting Strap	10	50	2
1348	Three Opening Mounting Strap	10	50	5
1352	Chromium - Plated Refl. only for No. 1339	10	30	2
1352-B	Brush Brass Reflector only for No. 1339-B	10	30	2
1354	Appliance Strap (Fastening Holes Tapped for 6-32 screws)	10	100	3
S-6 Clear	Lamp only for Nos. 1339, 1339-B	10	120	5
S-6 Red	Lamp only for Nos. 1340, 1340-B	10	120	5
1346	Box Divider for 1½, 2 or 2½-inch Switch Boxes	5	10	3

METAL BOX COVERS

Cadmium Finish



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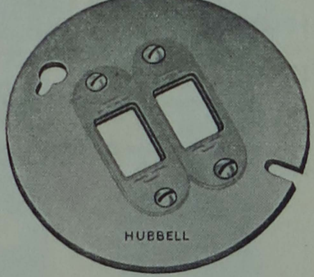


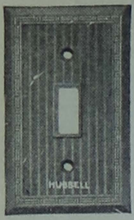
No. 1363

Cat. No.	Description	Carton	Std. Pkg.	Pkg. Wt.
1361	Single Opening Round Cover for 3¼-inch Box	10	100	25
1362	Single Opening Round Cover for 4-inch Box	10	100	33
1363	Two Opening Round Cover for 4-inch Box	10	50	18

Nos. 1343-B and 1352-B can be supplied in special finishes. The correct style of mounting strap is packed with each brass or bakelite plate. They may, however, be ordered separately, and for that purpose they are listed above. Covers are cadmium-plated and are furnished complete with the necessary straps for installing devices.

UNILINE BAKELITE PLATES

FOR STANDARD HUBBELL WIRING DEVICES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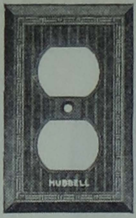
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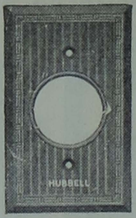
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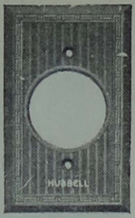
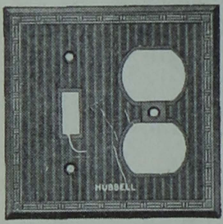

No. 91111

Toggle Switch Plates

Brown Cat. No.	Brown Car-ton	Brown Std. Pkg.	No. of Gangs	For No. Switches	Ivorine Cat. No.	Ivorine Car-ton	Ivorine Std. Pkg.
91071	10	100	1	1	**92071**	10	50
91072	10G	100G	2	2	**92072**	10G	50G
91073	10G	100G	3	3	**92073**	10G	50G
91074	10G	100G	4	4	**92074**	10G	50G
91075	10G	100G	5	5	**92075**	10G	50G
91076	10G	100G	6	6	**92076**	10G	50G

Convenience Outlet Plates

Brown Cat. No.	Brown Car-ton	Brown Std. Pkg.	No. of Gangs	For No. Switches	Ivorine Cat. No.	Ivorine Car-ton	Ivorine Std. Pkg.
For Duplex Convenience Outlet							
91101	10	100	1	..	**92101**	10	100
91102	5G	50G	2	..	**92102**	5G	50G
For Single Convenience Outlet							
91091	10	100	1	..	**92091**	10	50
For No. 7438, 30 Amp. Convenience Outlet							
91111	10	30	1	..	**92111**	10	30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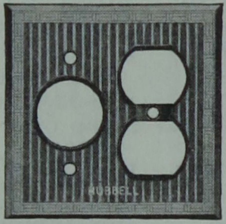
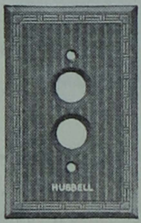

No. 91572

Combination Plates

Brown Cat. No.	Brown Car-ton	Brown Std. Pkg.	No. of Gangs	For No. Switches	Ivorine Cat. No.	Ivorine Car-ton	Ivorine Std. Pkg.
For Toggle Switch and Duplex Convenience Outlet							
91532	2	10	2	..	**92532**	2	10
For One Toggle Switch and One Single Outlet							
91512	2	10	2	..	**92512**	2	10
For One Single and One Duplex Receptacle							
91572	2	10	2	..	**92572**	2	10
For Two Toggle Switches and Duplex Convenience Outlet							
91543	2	10	3	..	**92543**	2	10
For Three Toggle Switches and One Duplex Outlet							
91554	2	10	4	..	**92554**	2	10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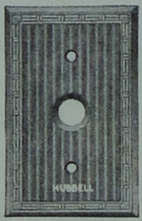

No. 91181

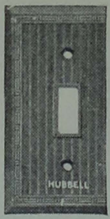
Push Button Switch Plates

Brown Cat. No.	Brown Car-ton	Brown Std. Pkg.	No. of Gangs	For No. Switches	Ivorine Cat. No.	Ivorine Car-ton	Ivorine Std. Pkg.
91081	10	100	1	1	**92081**	10	50
One Gang Telephone Plate*							
91181	10	50	1	..	**92181**	10	30
Blank Plates							
91121	10	50	1	..	**92121**	10	30
91122	10G	50G	2	..	**92122**	10G	30G

*With $\frac{19}{32}$-inch cord hole.

UNILINE BAKELITE PLATES

FOR STANDARD HUBBELL WIRING DEVICES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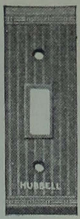
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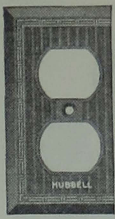
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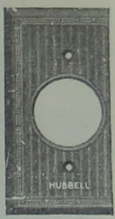
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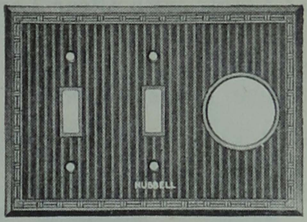

Sectional Plate Assembly
Nos. 91451, 91461, 91481

Sectional Plates

Brown Cat. No.	Brown Car-ton	Brown Std. Pkg.	Brown Pkg. Wt.	Ivorine Cat. No.	Ivorine Car-ton	Ivorine Std. Pkg.	Ivorine Pkg. Wt.
End Section for Toggle Switch							
91451	10	50	7	**92451**	10	50	5
Center Section for Toggle Switch							
91461	10	50	6	**92461**	10	50	4
End Section for Duplex Receptacle							
91471	10	50	4	**92471**	10	50	4
End Section for Single Receptacle							
91481	10	50	5	**92481**	10	50	5

Any of the Uniline Plates listed in this, and the preceding column, can be furnished in Black Bakelite at an addition of $2.00 per 100 list to the regular Brown Bakelite plate prices.

The catalog numbers applying to the Black Bakelite are the same as for Brown Bakelite, except that the Second Number is 3 instead of 1. For example, No. 91071 Brown Bakelite becomes 93071 Black Bakelite.

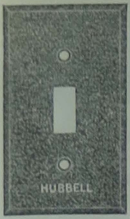
Brown Bakelite Plates are furnished as standard with Brown Plated screws. Ivorine plates are furnished as standard with Ivorine enameled screws. Brown Bakelite and Ivorine head screws may be furnished on order at slight additional charge.

Blank Plates and Telephone Plates are furnished complete with the necessary straps and screws.

Sectional Plates are easily assembled and may be interchanged with one another to make up various multi-gang and combination plates.

HUBBELL NEW PROCESS METAL WALL PLATES

BROWN-X—IVORY-X—CHROME-X



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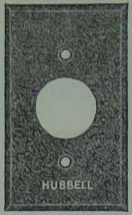

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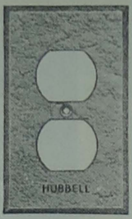

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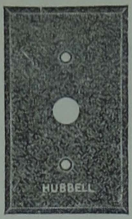


No. 1794

Toggle Switch Plates

Brown-X					Ivory-X		
Cat. No.	Carton	Std. Pkg.	No. of Gangs	For No. of Switches	Cat. No.	Carton	Std. Pkg.
1781	10	100	1	One	**1781-I**	10	100
1782	10G	100G	2	Two	**1782-I**	10G	100G
1783	10G	100G	3	Three	**1783-I**	10G	100G
1784	10G	100G	4	Four	**1784-I**	10G	100G
1785	10G	100G	5	Five	**1785-I**	10G	100G
1786	10G	100G	6	Six	**1786-I**	10G	100G

Convenience Outlet Plates

For Single Outlet

1787	10	100	1	-------	**1787-I**	10	100

For Duplex Outlet

1788	10	100	1	-------	**1788-I**	10	100

For Two Duplex Outlets

1789	10G	100G	2	-------	**1789-I**	10G	100G

Combination Plates

For Tumbler Switch and Single Outlet

1790	2	10	2	-------	**1790-I**	2	10

For Tumbler Switch and Duplex Outlet

1791	2	10	2	-------	**1791-I**	2	10

For Two Tumbler Switches and Duplex Outlet

1792	2	10	3	-------	**1792-I**	2	10

Blank and Telephone Plates

Single Gang Blank Plate

1793	10	50	1	-------	**1793-I**	10	50

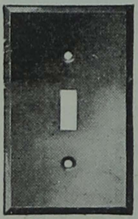
Single Gang, Cord Hole, ⅜-inch Composition Bushing

1794	10	50	1	-------	**1794-I**	10	50

CHROME-X (.040" STAINLESS STEEL) PLATES

Toggle Switch Plates

Cat. No.	No. of Gangs	For No. Switches	Carton	Std. Pkg.
1801	1	One	10	100
1802	2	Two	10G	100G
1803	3	Three	10G	100G
1804	4	Four	10G	100G
1805	5	Five	10G	100G
1806	6	Six	10G	100G


No. 1801

Convenience Outlet Plates

For Single Outlet

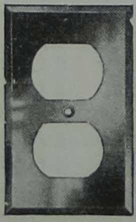
1870	1	-------	10	100

For Duplex Outlet

1808	1	-------	10	100

For Two Duplex Outlets

1809	2	-------	10G	100G


No. 1808

Combination Plates

1 Tumb. Switch and Sing. Outlet

1810	2	-------	2	10

1 Tumb. Sw. and Duplex Outlet

1811	2	-------	2	10

2 Tumb. Sw. and Duplex Outlet

1812	3	-------	2	10G

Blank and Telephone Plates

Single Gang Blank Plate

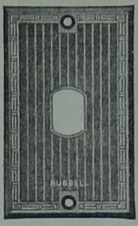
1813	1	-------	10	50

Single Gang, Cord Hole ⅜-inch Composition Bushing

1814	1	-------	10	50

HUBBELL INTERCHANGEABLE WIRING DEVICE LINE

UNILINE BAKELITE PLATES



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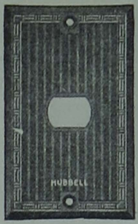

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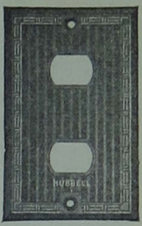

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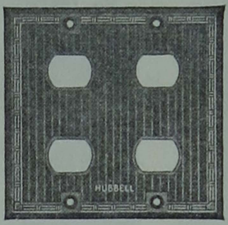

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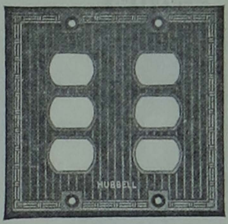


No. 91032

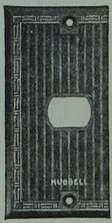
With Horizontal Openings

Cat. No.		Description	Carton	Std. Pkg.	Pkg. Wt.
Brown	Ivorine				
91011	**92011**	1-Gang for 1 device	10	100	16
91021	**92021**	1-Gang for 2 devices	10	50	8
91031	**92031**	1-Gang for 3 devices	10	30	6
91012	**92012**	2-Gang for 2 devices	10	30	10
91022	**92022**	2-Gang for 4 devices	10	30	9
91032	**92032**	2-Gang for 6 devices	10	20	5
91023	**92023**	3-Gang for 6 devices	10	20	6
1367	**1467**	Plate Screw	20	100	½

With Vertical Openings

91041	**92041**	1-Gang for 1 device	10	100	16
91042	**92042**	2-Gang for 2 devices	10	30	10

SECTIONAL PLATES



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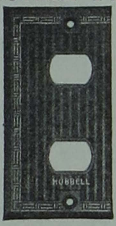

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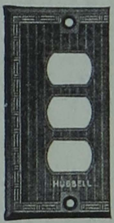
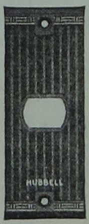


No. 91331



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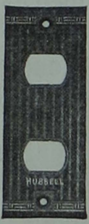

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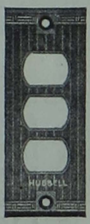


No. 91431

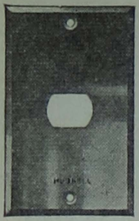
Cat. No.		Description	Carton	Std. Pkg.	Pkg. Wt.
Brown	Ivorine				
		End Section—Horizontal Opening			
91311	**92311**	For 1 device	10	50	10
91321	**92321**	For 2 devices............	10	50	10
91331	**92331**	For 3 devices............	10	30	8
		Center Section—Horizontal Opening			
91411	**92411**	For 1 device	10	50	9
91421	**92421**	For 2 devices............	10	50	9
91431	**92431**	For 3 devices............	10	30	7
1367	**1467**	Plate Screws	20	100	½

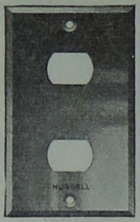
Any of the above plates can be furnished in **Black Bakelite** at an addition of **$2.00** per 100 list to the regular Brown Bakelite Plate prices.

The catalog numbers applying to the **Black Bakelite** are the same as for Brown Bakelite, except that the **Second Number** will be 3 instead of 1. Example: No. 91011 Brown Bakelite becomes 93011 in Black Bakelite.

HUBBELL INTERCHANGEABLE WIRING DEVICE LINE

BRASS WALL PLATES


No. 1771-A
No. 1671-A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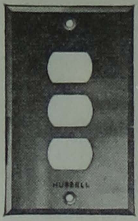
No. 1671-B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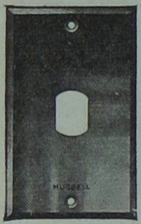
No. 1671-C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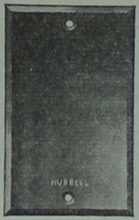
No. 1671-G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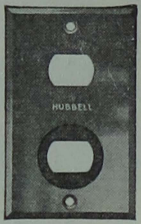
No. 1671-J


No. 1771-R
No. 1671-R

Struck-Up—.040-Inch Metal

Cat. No.		Description	Car-ton	Std. Pkg.	Pkg. Wt.
Brush Brass	Lacco				
		Single Gang			
1771-A	L1771-A	1 Open. (horiz.)	10	100	24
1771-B	L1771-B	2 Openings	10	50	12
1771-C	L1771-C	3 Openings	10	30	7
1771-G	L1771-G	1 Open. (vert.)	10	100	23
1771-J	L1771-J	Blank Plate	10	50	12
1771-R	L1771-R	2 Openings	2	10	3
1771-V	L1771-V	2 Openings	2	10	3
		Two Gang			
1772-2A	L1772-2A	2 Open. (horiz.)	2	10	8
1772-2B	L1772-2B	4 Openings	2	10	6
1772-2C	L1772-2C	6 Openings	2	10	5
1772-2G	L1772-2G	2 Open. (vert.)	2	10	8
1772-2J	L1772-2J	Blank Plate	2	10	9
		Three Gang			
1773-3A	L1773-3A	3 Open. (horiz.)	2	10	7
1773-3B	L1773-3B	6 Openings	2	10	5
1773-3C	L1773-3C	9 Openings	2	10	4
1773-3G	L1773-3G	3 Open. (vert.)	2	10	7
1773-3J	L1773-3J	Blank Plate	2	10	12

Struck-Up—.060-Inch Metal

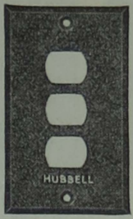
Cat. No.		Description	Car-ton	Std. Pkg.	Pkg. Wt.
		Single Gang			
1671-A	L1671-A	1 Open. (horiz.)	10	100	36
1671-B	L1671-B	2 Openings	10	50	18
1671-C	L1671-C	3 Openings	10	30	12
1671-G	L1671-G	1 Open. (vert.)	10	100	36
1671-J	L1671-J	Blank Plate	10	50	25
1671-R	L1671-R	2 Openings	2	10	4
1671-V	L1671-V	2 Openings	2	10	4
		Two Gang			
1672-2A	L1672-2A	2 Openings	2	10	7
1672-2B	L1672-2B	4 Openings	2	10	7
1672-2C	L1672-2C	6 Openings	2	10	6
1672-2G	L1672-2G	2 Open. (vert.)	2	10	7
1672-2J	L1672-2J	Blank Plate	2	10	11
		Three Gang			
1673-3A	L1673-3A	3 Openings	2	10	10
1673-3B	L1673-3B	6 Openings	2	10	8
1673-3C	L1673-3C	9 Openings	2	10	7
1673-3G	L1673-3G	3 Open. (vert.)	2	10	10
1673-3J	L1673-3J	Blank Plate	2	10	13

HUBBELL INTERCHANGEABLE WIRING DEVICE LINE

METAL WALL PLATES

Brown-X — Ivory-X — Chrome-X

No. 1304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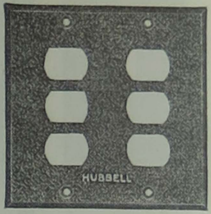
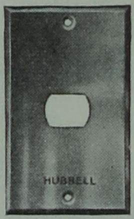

No. 1307

Cat. No.		Description	Car-ton	Std. Pkg.	Pkg. Wt.
Brown-X	Ivory-X				
		Single Gang			
1301	1301-I	1 Opening (†)	10	100	20
1302	1302-I	2 Openings	10	50	10
1303	1303-I	3 Openings	10	30	6
1304	1304-I	1 Opening (‡)	10	100	20
		Two Gang			
1305	1305-I	2 Openings (†)	2	10	4
1306	1306-I	4 Openings	2	10	4
1307	1307-I	6 Openings	2	10	3
1308	1308-I	2 Openings (‡)	2	10	4
		Three Gang			
1309	1309-I	3 Openings (†)	2	10	5
1310	1310-I	6 Openings	2	10	5
1394	1394-I	9 Openings	2	10	4
1395	1395-I	3 Openings (‡)	2	10	5

Brown-X and Ivory-X plates have a multiple coat of baked-on, insulating enamel. Closely resembling Bakelite, they have all of the sturdiness of metal plates—they will not warp or crack and their surface is satisfactory for painting.

†Horizontal openings. ‡Vertical openings.

CHROME-X (.040" STAINLESS STEEL) PLATES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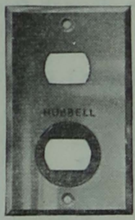
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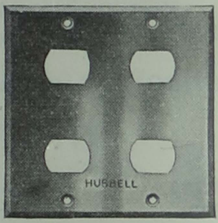
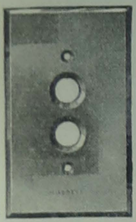

No. 1508

Cat. No.	Description	Car-ton	Std. Pkg.	Pkg. Wt.
	Single Gang			
1501	1 Opening (horizontal)	10	100	22
1502	2 Openings	10	50	11
1503	3 Openings	10	30	7
1504	1 Opening (vertical)	10	100	19
1505	2 Openings, 1 adapter	2	10	3
1506	2 Openings, 2 adapters	2	10	3
	Two Gang			
1507	2 Openings (horizontal)	2	10	4
1508	4 Openings	2	10	4
1509	6 Openings	2	10	3
1510	2 Openings (vertical)	2	10	4
	Three Gang			
1511	3 Openings (horizontal)	2	10	5
1512	6 Openings	2	10	5
1513	9 Openings	2	10	4
1514	3 Openings (vertical)	2	10	5

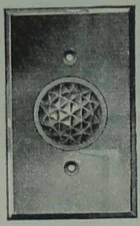
Chrome-X plates are made of .040 inch stainless steel. Their soft, semi-polished, silverlike finish is right in the metal and will last indefinitely.

HUBBELL COMBINATION BRASS PLATES

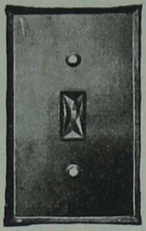
Hubbell Standard Combination Plates are made in .100-inch solid brass, struck up .060 and .040-inch brass. Combination plates with sections for Interchangeable Line made in .060-inch brass only. The standard finish is brush brass. The advance for special finishes should be added to brush brass list prices. If plates are ordered by letter only and no finish is specified, brush brass will be supplied. A combination plate must be made up of 2 or more different letters and not gangs of standard plates. For example: AA is not a combination plate.


A

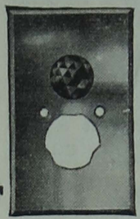
For Push Switch


C

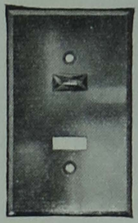
With Round Bull's-Eye for Pilot Light Receptacle


T

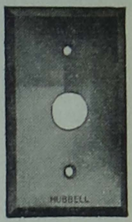
With Rectangular Bull's-Eye for Pilot Light Receptacle


F

For No. 7712 Pilot Light Receptacle

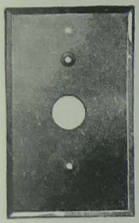

S

For No. 7739 Switch and Bull's Eye

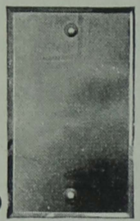


O

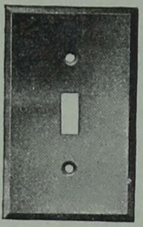
*For ⅝-Inch Push Button


B

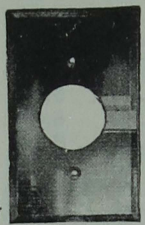
For Round Handle Toggle Switches


D

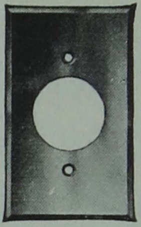
For Outlet Box


P

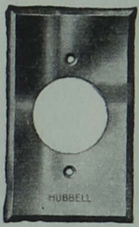
For Standard Toggle Switch


G

†For Single Convenience Outlets and Standard 2, 3 and 4-Wire Flush Receptacles

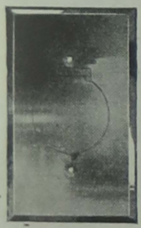

Y

†For No. 7410 4-Wire Twist-Lock Receptacle Only

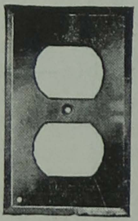


K

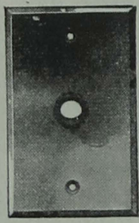
†For No. 7438 Receptacle Only


J

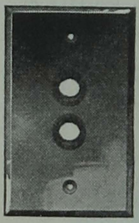
**Double Hinge Cover for No. 5579


H

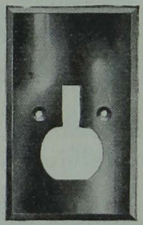
For Duplex Convenience Outlets


M

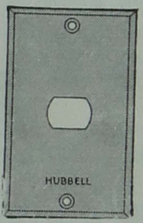
*For Telephone Outlet, 1 Bushing


N

*For Telephone Outlet, 2 Bushings

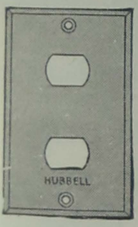

E

For Switch and Receptacle No. 8888



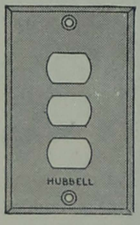
A^1

‡ Single Opening (Interchangeable)



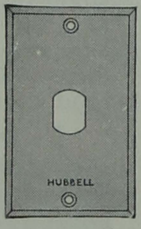
B^1

Two Openings (Interchangeable)



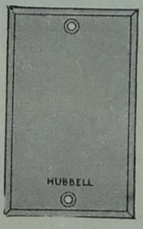
C^1

‡Three Openings (Interchangeable)



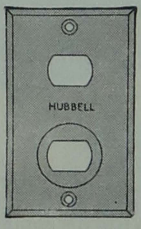
G^1

‡Single Opening (Interchangeable)



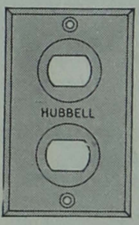
J^1

‡Blank (Interchangeable)



R^1

‡Plate with Bakelite Insulating Adapter (Interchangeable)



V^1

‡For Two Interchangeable Devices —Two Insulating Adapters

*Screw spacing, 2⅜ inches. Adapter to 3$\frac{3}{32}$ inches for box mounting supplied with this section.

**Only supplied in solid brass. ‡Available in .060 metal only.

†Combinations embracing two adjacent G. Y, or K sections Nos. 7250, 7310, 7410, or 7438 receptacles, require an extra blank gang between them to provide space for insertion of caps.

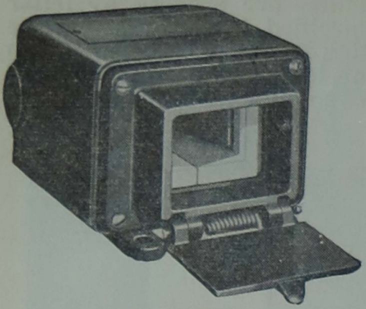
Standard package of special combination plates consists of 10 identical plates; carton, 2 identical plates. To determine the list price of combination plates, add together the separate lists of the sections making the combination up to and including 3 gangs.

The list price of combination brass plates having 4 or more gangs is the sum of the individual sections plus 25 per cent of that sum. Tandem or special size combination plates can only be supplied in solid brass. When arranged in tandem, add 25% to solid list price of horizontal plates.

For special dimensions, features or screw spacings see another page. In ordering combination plates, use letters and thickness of metal in the same relative position as required. For example, P C G .060" would cover a plate to take one toggle switch, one bull's-eye, and one single convenience outlet—the bull's-eye to be in the middle, to be of .060" brass.

RALCO RECEPTACLES AND PLUGS

2-POLE UNIT TYPE



No. 621ECP

The receptacle unit consists of standard 30 amp. 2 pole porcelain blocks with heavy phosphor bronze contacts.

The 21 and 621 series listed below are of identical construction as to cast iron cases.

2 Pole—Not Fusible, 250 Volt

Mfrs. No.	Amp. Cap.	Mfrs. No. Of Plug	Wt. Lbs. With Plug	Price Each Receptacle Only	Price Each Plug Only	Price Each Complete With Plug
21	30	1	7	**$4.40**	**$1.30**	**$5.70**
21EC	30	1	8	**5.50**	**1.30**	**6.80**
21P	30	2	7	**4.50**	**1.60**	**6.10**
21ECP	30	2	8	**5.50**	**1.60**	**7.10**
2 Pole—Not Fusible, 600 Volt						
621	30	1	7	**4.40**	**1.30**	**5.70**
621EC	30	1	8	**5.50**	**1.30**	**6.80**
621P	30	2	7	**4.50**	**1.60**	**6.10**
621ECP	30	2	8	**5.50**	**1.60**	**7.10**

Dimensions—Nos. 21 21P, 621 and 621P—6½ inches high, 4½ inches wide, 3½ inches deep. Nos. 21EC, 21ECP, 621EC, 621ECP—8⅛ inches high, 4½ inches wide, 3½ inches deep.

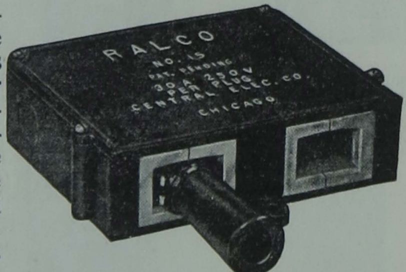
Mounting—4 lugs, 2 on top, 2 on bottom.

Conduit Openings—Bossed, top and two sides. Will be furnished, drilled and tapped on top for ½ inch conduit, unless otherwise specified.

Plugs—No. 1 Plug is reversible and is bored for 2 conductor portable cord, No. 8, or smaller. No. 2 plug is non-reversible and is bored for 2 conductor portable cord, No. 8 and smaller.

TWIN RECEPTACLES

With Non-Reversible Plugs, 2 Pole



No. 15

Especially desirable for use where two portable lights or portable motor outlets are required. Cases designed to give ease in wiring. Ample space is provided for surplus wire. No. 15G has grounding contacts.

Not Fusible, 250 Volts

Mfrs. No.	Amp. Cap.	Mfrs. No. of Plug	Wt. Lb. With Plug	Price Each Receptacle Only	Price Each Plug Only	Price Each Complete With Plug
15	30	2	9	**$8.90**	**$1.60**	**$10.50**
2614	60	3	25	**21.40**	**3.00**	**24.40**
Not Fusible, 250 Volts—With Grounding Contact						
15G	30	2G	9	**9.90**	**2.40**	**12.30**

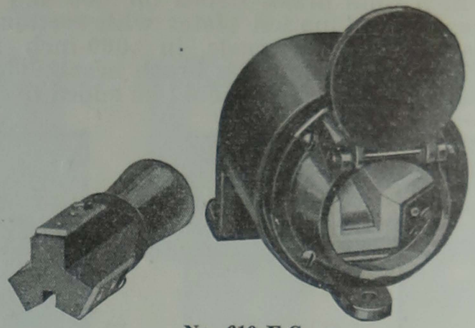
Dimensions: Nos. 15, 15G, 7⅛ inches high, 8¼ inches wide, 2½ inches deep. No. 2614, 11½ inches high, 11 inches wide, 3¾ inches deep.

Mounting: Nos. 15 and 15G, one lug on bottom and two holes in back of cast iron case. No. 2614, 3 lugs, one on bottom, one on each side. Knockouts top and two sides for ¾ inch conduit. Plugs No. 2 non-reversible bored for portable cord, 2 conductor, No. 8 or smaller. Nos. 2G and 2GB with grounding contact bored for portable cord, 3 conductor, No. 8 or smaller. No. 3 non-reversible bored for portable cord, 2 conductor, No. 4 or smaller.

RALCO RECEPTACLES AND PLUGS

3 POLE RECEPTACLES, UNIT TYPE

30 Amperes



No. 610 E.C.

The receptacle unit consists of heavy porcelain blocks mounted in a suitable frame. The units are easily wired and mounted in the cast iron case in which ample room has been allowed for surplus wire.

The letters E. C. added to the number indicates that the receptacle will be furnished with an extension and cover for outside work.

These receptacles and plugs are dependable outlets for portable machinery of all kinds in shops, warehouses, docks, mines and yards. While the No. 10 series can be used on 3 phase circuits they are also widely used on 2 wire circuits where it is desired to ground the motors of the portable equipment.

Not Fusible—250 Volts

Mfrs. No.	Amp. Cap.	Mfrs. No. Of Plug	Wt. Lbs. With Plug	Price Each Receptacle Only	Price Each Plug Only	Price Each Complete With Plug
4	30	4EC	5½	**$8.20**	**$3.30**	**$11.50**
4EC	30	4EC	6¾	**9.20**	**3.30**	**12.50**
10	30	10EC	6	**8.20**	**3.30**	**11.50**
10EC	30	10EC	6¾	**9.20**	**3.30**	**12.50**
Not Fusible—600 Volts						
604	30	4EC	5½	**8.20**	**3.30**	**11.50**
604EC	30	4EC	6¾	**9.20**	**3.30**	**12.50**
610	30	10EC	5½	**8.20**	**3.30**	**11.50**
610EC	30	10EC	6¾	**9.20**	**3.30**	**12.50**

*Reversible plug. †Non-reversible plug.

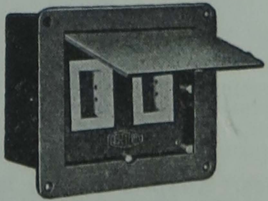
Dimensions—No. 10, 610, 4 and 604—6½ inches high, 4¾ inches wide, 4¾ inches deep. No. 10EC, 610EC, 4EC and 604EC, 8 inches high, 4¾ inches wide, 4¾ inches deep.

Mounting—3 lugs, 2 top, one bottom.

Conduit Openings—Receptacles are tapped on top for one inch conduit.

Plugs—No. 4EC and 10EC plugs are bored for 3 conductor portable cord, No. 8 or smaller.

FLOOR AND WALL POCKETS



Wall Type

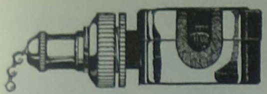
Floor Type

Floor Type—Plugs Included

Cat. No.	Description	List Price
3091	One Way	$10.00
3092	Two Way	16.00
3093	Three Way	21.00
3094	Four Way	28.00
	Wall Type—Plugs Included	
3101	One Way	10.00
3102	Two Way	16.00
3103	Three Way	21.00
3104	Four Way	28.00

LEVOLIER SWITCHES

STANDARD AND THIN MODELS


6 Amp.

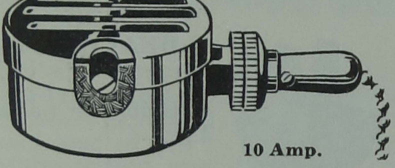
For individual control of lights in the office, factory, mill, etc. The Levolier switch is one of the smallest 6-amp. Pull Switches made, yet has unusual carrying capacity. Made in two different thicknesses, standard and thin models, 3 different stem lengths. Standard finishes brush brass, Jap bronze and nickel flash. Other finishes on request.

Levolier Thin Model—Only ⅝-inch Thick

Conduit Box and Fixture Switch

Cat. No.	Stem Diam.	Stem Lgth.	Carton	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
41	7/16	3/16	10	100	12	$0.85
41PL	7/16	3/16	10	100	9	.75
42	7/16	⅜	10	100	12	.85
43	7/16	¾	10	100	13	.85
Levolier Standard Model—Only ⅞-inch Thick						
61	7/16	3/16	10	100	14	.95
61PL	7/16	3/16	10	100	11	.85
62	7/16	⅜	10	100	14	.95
63	7/16	¾	10	100	15	.95

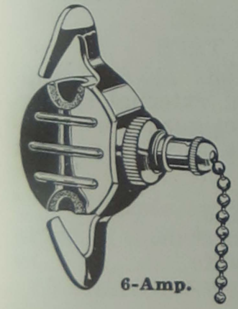
10-AMP. LEVOLIER CANOPY PULL SWITCH


10 Amp.

Designed for safe, positive control of modern high watt and high intensity lamps. Fitted into the fixture canopy or conduit box. No. 1010 withstands 1000-watt lamp shock, and may be switched with full capacity as readily as with lower capacity lamps. Link switch No. 1039 is the same as No. 1010 with addition of link for fitting into chain fixture without rewiring. Both are 10 amp., "T" 125 volt or 5 amp., 250 volt switches.

Cat. No.	Stem, In. Dia.	Stem, In. Length	Carton	Std. Pkg.	Shpg. Wt. Lbs.	Price Each
1010	½	⅜	10	50	10	$1.30
1010-L	½	⅝	10	50	10	1.30
1010-PL	½	⅜	10	50	9	1.20
1039	Link Type		10	50	13	1.35

LEVOLIER LINK SWITCH


6-Amp.

Can be used on any chain fixture, old or new, and between any two links of chain. When installed in fixtures that have been previously hung it fits in place of one of the chain links without altering the length of the fixture or necessitating rewiring or splicing of lead wires.

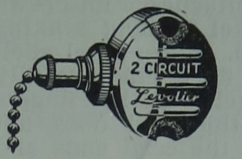
The Levolier link switch consists of a standard Levolier pull switch, and Levolier link. Standard finish, brush brass, Jap bronze and nickel flash.

Cat. No.	Carton	Std. Pkg.	Shpg. Wt. Lbs.	Price Each
Standard Model				
59	10	100	18	$0.95
Thin Model				
39	10	100	16	.85

LEVOLIER SWITCHES

NO. 201 LEVOLIER TWO-CIRCUIT SWITCH

3 Amps., 125 Volts

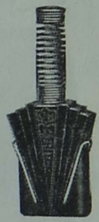


The No. 201 is a two-circuit switch designed to operate in the new three-light lamps. Same size as the No. 61 Levolier Fixture Switch and has the universal lever controlled by a pull cord. When installed in the canopy of a fixture using the three-light lamp, it operates as follows: First pull turns on smaller filament, second pull turns off small filament and turns on the larger filament, third pull turns both filaments on and fourth turns both off.

Cat. No.	Stem, In. Diam.	Stem, In. Lgth.	Carton	Std. Pkg.	Shpg. Wt.Lbs.	Price Each
201	7/16	3/16	10	100	12	$0.85
202	7/16	⅜	10	100	12	.90
203	7/16	¾	10	100	13	.90

C-H CONNECTOR PLUG

Heat-Proof

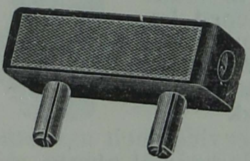


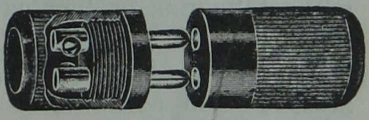
The outside contact springs not only hold the plug together, but also furnish the heavy pressure for good electrical contact between the clips (inside the plug) and the iron prongs. The springs being outside the plug are unaffected by heat and will not lose their tension. Body of black Thermoplax — will not char or crumble. Attractive color display carton contains 10 individually boxed plugs and one additional free one. Plugs in plain packaging are not individually boxed.

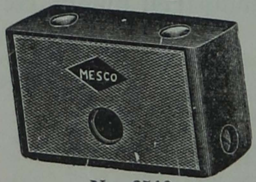
10 Amperes, 125 Volts—5 Amperes, 250 Volts

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
8001	10	100	16	$0.25

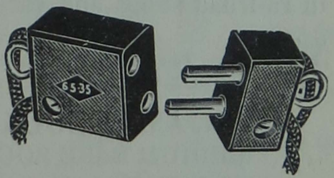
MANHATTAN CONNECTORS




No. 6502



No. 6540



No. 6535

The standard where connectors are required. The contact parts are moulded under heavy pressure in a solid block of hard composition insuring perfect alignment. All types except the 6501 have phosphor bronze springs in the receptacle end which insures good contacts over a large surface and provides carrying capacity.

Cat. No.	Description	Price Each
6501	Battery type, ½ x 1⅞ inches	$0.34
6502	5 Ampere, ¾ x 2¼ inches	.34
6535	15 Ampere, ¾ x 1¼ x 1⅞ inches	.70
6540	25 Ampere, ⅝ x 2⅛ x 2 inches	.90

BENJAMIN ATTACHMENT PLUGS

SWIVEL ATTACHMENT PLUGS

Listed by Underwriters'—660 Watts, 250 Volts

With Fibre Ring

This plug easily attaches or unscrews from the lamp socket without kinking or turning the cord. The swivel shell arrangement with fibre ring, readily turns into the socket with the fingers of one hand but the cord does not twist. Parts clamp the cord ends and make cord knotting unnecessary. Bushing has 13/32 inch opening and takes plain or reinforced cord.

Cat. No.	Description	Std. Pkg.	Carton	Shipping Wt. Lbs. Std. Pkg.	List Price Per 100
903	With 13/32-In. Open	250	50	30	**$20.00**

With Molded Ring

Has the same swivel feature as No. 903 but is equipped with molded composition attaching ring to enhance the appearance and give more body to the finger gripping means. It is very desirable for use on household appliance cords.

904	With 13/32-In. Open	250	50	30	**$25.00**

With Fibre Ring and Special Bushing

For the appliance service that requires a heavy reinforced cord, No. 903F should be an important part of the equipment. It has a heavy molded bushing with a ½ inch cord opening that will take any heavy reinforced cord or flexible armored cable whose outside diameter does not exceed ½ inch. A metal set screw grips cord tightly, protecting both the cord and binding screw connection with plug.

Cat. No.	Description	Std. Pkg.	Carton	Shipping Wt. Lbs. Std. Pkg.	List Price Per 100
903-F	With ½-In. Open.	50	10	6	**$50.00**

MECHANICS' SWIVEL ATTACHMENT PLUG

Listed by Underwriters'—660 Watts, 250 Volts

The chuck type bushing of this plug takes a firm grip on any of the standard portable cords 27/64 to 9/16 inch outside diameter. Attachment is made without kinking or turning cord because the swivel shell is the only part that rotates. This plug has large molded ring which can readily be grasped with a gloved hand.

It is adaptable for rough service such as found in railroad shops and yards, industrial plants, etc.

Cat. No.	Description	Std. Pkg.	Carton	Shipping Wt. Lbs. Std. Pkg.	List Price Per 100
916	Chuck Cord Grip	50	10	12	**$80.00**

BENJAMIN SOCKET EXTENSION

MEDIUM BASE SOCKET EXTENSION

Listed by Underwriters' Laboratories

660 Watts—250 Volts

No. 91 permits the efficient use of 60, 100 and 150 watt lamps in reflectors designed for the next larger size lamp, by lowering the lamp ⅞ inches. The bead on body also affords a means of attaching glassware to flush receptacles. Finish is bright dip and lacquer.

Cat. No.	Description	Std. Pkg.	Carton	Shipping Wt. Lbs. Std. Pkg.	List Price Per 100
91	Extension Only	50	10	10	**$17.00**

Schedule 3 Discounts Apply.

BENJAMIN SOCKET EXTENSION

MOGUL BASE SOCKET EXTENSION

Listed by Underwriters' Laboratories

1500 Watts—600 Volts

With this device the socket is extended 2½ inches. It allows fixtures designed for 750-1500 watt lamps to be used with 300 and 500 watt lamps with the same character of distribution. Porcelain body with brass or copper contact parts.

Cat. No.	Std. Pkg.	Carton	Shpg. Wt. Lbs. Std. Pkg.	List Price Per 100
4396	50	10	55	**$110.00**

Schedule 3 Discounts Apply.

SPRING-ACTION SAFETY PLUGS AND TAPS

PONY GRIP CAP

Furnished in all size holes.

Cat. No.	Description	Price Each
100	Regular, Black or Brown Bakelite	**$0.05**
100-I	Regular, Ivory	**.08**

HEAVY DUTY HANDLE GRIP CAPS

SPRING-ACTION

Black or brown, and ivory bakelite.

Cat. No.	Description	Price Each
101-H	Black or Brown	**$0.08**
101-HI	Ivory Bakelite	**.10**

RUBBER HANDLE GRIP CAP

SPRING-ACTION

Black or brown. Size holes, No. 102, .390, .312, .260; No. 102-S, 390.

Cat. No.	Description	Price Each
102	Long Rubber Handle....	**$0.10**
102-S	Short Rubber Handle....	**.08**

CUBE TAPS

SPRING ACTION

With three outlets always available. Internal and external spring-action blades. Designed for cube-tap only; pins are used to prevent play.

Cat. No.	Description	Price Each
109	Black or Brown	**$0.15**
109-I	Ivory Bakelite	**.19**

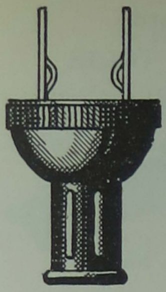
CUBE TAPS

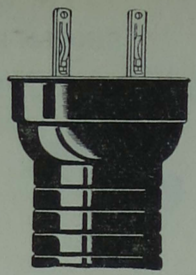
With Spring-Action blades and shakeproof inside contacts.

Cat. No.	Description	Price Each
121	Black or Brown	**$0.14**
121-I	Ivory Bakelite	**.17**

Each of the above types is available in attractive set-up display boxes of 25 pieces.

STA-TITE RUBBER PLUGS


No. R-311


No. R-511

The new spring design in bronze blade grips receptacle holding plug secure. Prevents plug from falling out of worn or old receptacles. Assures efficient operation of electrical appliances, when trouble occurs from faulty plug connections.

Cat. No.	Description	Carton	Std. Pkg.	Price Each
R-311	Round Rubber, Black	25	250	**$0.10**
R-511	Industrial Rubber, Cord Hole .540	10	250	**.15**

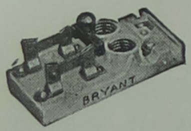
PERKINS PANEL SWITCHES

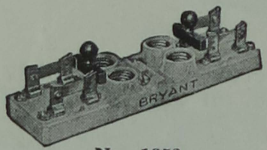
WITH CONNECTIONS FOR 2 PLUG FUSES IN EACH BRANCH

Each branch is fitted with a double-pole switch, which may be removed without disturbing either main or branch connections.

Cabinets not supplied. These switches may be installed in any standard cabinet having a minimum depth of 3 inches. Gutter cabinets may be specified to the exact size of the switch bases as there is ½ inch of insulation outside of all current carrying parts as required by the National Electrical Code.

PANEL SWITCHES—REVERSIBLE BLADES


No. 1851

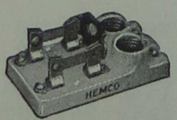

No. 1852

No. 1851, fuses are located at the top. No. 1842 and No. 1947 are for vertical mains.

Mfrs. No.	Amps.	Volts	Dimen. In.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
Double-Pole, Single-Branch							
1851	30	125	6½x$3\frac{3}{16}$	2	25	46	**$128.50**
Double-Pole, Double-Branch							
1852	30	125	10⅞x$3\frac{3}{16}$	2	20	67	**275.00**
Triple to Double-Pole, Double-Branch							
1947	30	125	11⅞x$3\frac{3}{16}$	2	20	80	**291.00**

ENTRANCE SWITCHES—REVERSIBLE BLADES

Double-Pole Fusing



No. H1695 has fuses located at top.

No. H1981 has fuses located at bottom.

Mfrs. No.	Amps.	Volts	Dimen. In.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
H1695	30	125	$5\frac{17}{32}$x$3\frac{3}{16}$	2	25	38	**$63.50**
H1981	30	125	$5\frac{17}{32}$x$3\frac{3}{16}$	2	25	38	**63.50**

PLUG FUSE CUTOUT BASES

N. E. C. Standard

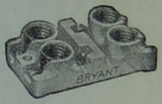
WITH FUSED NEUTRAL

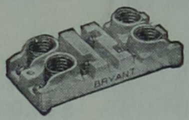
30 Amperes, 125 Volts

H110

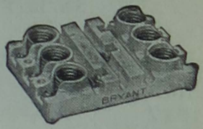
H220

H221


H222


H232

H330


H332

Mfrs. No.	Dimensions Inches	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
Single-Pole Main Line					
H110	2¾x$1\frac{29}{32}$	10	100	38	**$21.00**
2-Pole Main Line					
H220	$2\frac{15}{16}$x$2\frac{9}{16}$	10	100	58	**27.00**
2-Pole Single Branch					
H221	$2\frac{15}{16}$x$3\frac{19}{32}$	5	50	42	**30.00**
2-Pole Single or Double Crossover Branch					
H224	3⅜x3⅜	5	50	49	**31.00**
2-Pole Double Branch					
H222	$2\frac{15}{16}$x$5\frac{9}{32}$	5	50	62	**53.00**
Triple to Double-Pole Double Branch					
H232	$2\frac{15}{16}$x$6\frac{5}{16}$	5	50	76	**58.00**
3-Pole Main Line					
H330	$2\frac{9}{16}$x$4\frac{7}{16}$	5	50	50	**47.00**
3-Pole Single Branch					
H331	$4\frac{7}{16}$x4⅝	5	50	87	**70.00**
3-Pole Double Branch					
H332	$4\frac{7}{16}$x$6\frac{5}{16}$	5	50	118	**90.00**

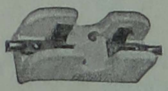
WITH SOLID NEUTRAL

30 Amperes, 125 Volts

Mfrs. No.	Dimensions Inches	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
2-Pole Main Line					
H120	2¼x2½	10	150	64	**$27.00**
2-Pole Single Branch					
H121	2¼x3⅝	10	100	62	**30.00**
2-Pole Double Branch					
H122	2¼x5¼	5	50	46	**53.00**
Triple to Double-Pole Double Branch					
H132	2¼x6⅜	5	50	57	**58.00**
3-Pole Main Line					
H133	2½x4⅜	5	50	42	**47.00**
3-Pole Single Branch or 2-Circuit					
H131	$3\frac{1}{16}$x$4\frac{11}{16}$	5	25	30	**70.00**
3-Pole Double Branch or 4-Circuit					
H134	$3\frac{1}{16}$x6⅜	5	25	42	**110.00**

CARTRIDGE FUSE CUT-OUT BASES

Single-Pole—250 Volts



Screw holes staggered: No. 3929, on length, ⅜ inch; on width, ¾ inch. No. 3920, on length, ⅝ inch; on width, 1 inch.

Barrier Type—Porcelain Base

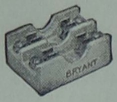
Mfrs. No	Amps.	Dimens. Inches Lgth.	Dimens. Inches Wdth.	Dimens. Inches Hght.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3929	1-30	$3\frac{7}{16}$	$1\frac{17}{32}$	1½	5	50	25	**$32.00**
3930	31-60	5	$1\frac{29}{32}$	$2\frac{3}{16}$	2	50	65	**55.00**

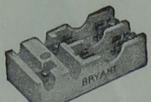
CARTRIDGE FUSE CUTOUT BASES

N. E. C. Standard

PORCELAIN BASE—250 VOLTS

With Connections for One Cartridge Fuse in Each Side of the Line


No. 1917


No. 1919

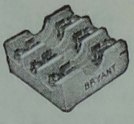
Double-Pole, Main

Mfrs. No.	Amps.	Dimens. In.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1917	1-30	3 5/16x2 13/16	5	50	45	**$44.00**
1918	31-60	5 x3⅝	2	50	117	**112.00**
271	61-100	7⅝x3⅞	1	50	208	**224.00**

Double-Pole, Single-Branch

Mfrs. No.	Amps.	Dimens. In.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1919	1-30	4 15/16x2 13/16	1	50	72	**56.00**
1920	31-60	6 13/16x3⅝	1	50	165	**140.00**

No. 1922

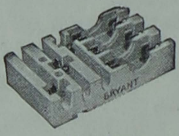

No. 1924

Double-Pole, Double-Branch

Mfrs. No.	Amps.	Dimens. In.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1922	1-30	7¾x2 13/16	1	25	53	**$104.00**
1996	31-60	10⅝x3⅝	1	25	117	**280.00**

Triple-Pole, Main

Mfrs. No.	Amps.	Dimens. In.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1924	1-30	3 5/16x4 1/16	5	50	63	**64.00**
1925	31-60	5 x5 5/16	1	50	155	**160.00**
272	61-100	7⅝x5⅝	1	25	149	**320.00**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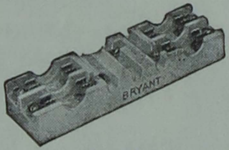

No. 1923

Triple-Pole, Single-Branch

Mfrs. No.	Amps.	Dimens. In.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1926	1-30	6 1/16x4 1/16	1	50	125	**$108.00**
1927	31-60	8 1/16x5 5/16	1	50	398	**240.00**

Triple-Pole, Double-Branch

Mfrs. No.	Amps.	Dimens. In.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1928	1-30	8⅞x4 1/16	1	50	198	**180.00**
1998	31-60	11⅞x5 5/16	1	10	78	**480.00**

Triple to Double-Pole, Double-Branch

Mfrs. No.	Amps.	Dimens. In.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1923	1-30	8⅞x2 13/16	1	25	75	**120.00**
1997	31-60	11⅞x3⅝	1	25	135	**336.00**

We are as near as your nearest telephone.

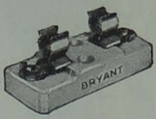
Advise us of your requirements which will receive our prompt and careful attention.

CARTRIDGE FUSE CUTOUT BASES

N. E. C. Standard

SINGLE POLE—250 VOLTS

Porcelain Base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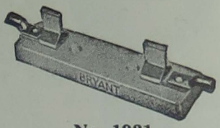
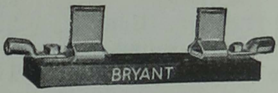

No. 1931

Mfrs. No.	Amps.	Dimens. Inches Lgth.	Dimens. Inches Wdth.	Dimens. Inches Hght.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1929	1- 30	3 7/16	1 15/32	1⅜	5	50	18	**$32.00**
1930	31- 60	4⅞	1½	1 31/32	2	50	35	**55.00**
1931	61-100	7 15/16	2¼	2 9/16	1	50	91	**112.00**
1932	101-200	10	2¼	3 5/32	1	50	137	**231.00**

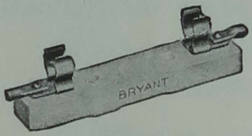
Slate Base


No. 1934

Mfrs. No.	Amps.	Dimens. Inches Lgth.	Dimens. Inches Wdth.	Dimens. Inches Hght.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
648	1- 30	4¾	1⅝	1 7/16	5	50	27	**$37.40**
649	31- 60	6	1¾	1 23/32	2	50	47	**60.00**
1933	61-100	10	2	2⅜	1	50	117	**133.00**
1934	101-200	10	2¼	3 3/32	1	25	83	**200.00**
1935	201-400	14¾	2¾	3¾	1	10	73	**500.00**
1936	401-600	17¾	3	4 11/16	1	5	66	**684.00**

SINGLE-POLE—600 VOLTS

Barrier Type—Porcelain Base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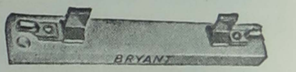

No. 1939

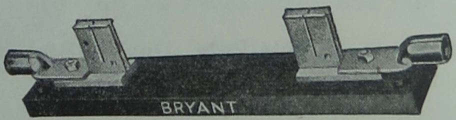
Screw holes, No. 3937, on 2½-inch centers; No. 3938, on 2 25/32-inch centers.

Mfrs. No.	Amps.	Dimens. Inches Lgth.	Dimens. Inches Wdth.	Dimens. Inches Hght.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
3937	1- 30	6 7/16	1 11/16	1¾	1	50	66	**$46.00**
3938	31- 60	7 9/16	2⅛	2¼	1	50	106	**69.00**

Porcelain Base

Mfrs. No.	Amps.	Dimens. Inches Lgth.	Dimens. Inches Wdth.	Dimens. Inches Hght.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1937	1- 30	7	1½	1 31/32	1	50	59	**46.00**
1938	31- 60	7⅝	1¾	2 7/32	1	50	56	**69.00**
1939	61-100	12	2	2 9/16	1	50	115	**148.00**
1940	101-200	14½	2½	3 5/32	1	50	142	**253.00**

Slate Base


No. 1943

Mfrs. No.	Amps.	Dimens. Inches Lgth.	Dimens. Inches Wdth.	Dimens. Inches Hght.	Carton	Std. Pkg.	Pkg. Wt.	Price Per 100
1941	61-100	12	2	2½	1	50	129	**$140.00**
1942	101-200	14½	2½	3 3/32	1	25	122	**218.50**
1943	201-400	17¾	3	3⅞	1	10	108	**570.00**
1944	401-600	20¾	3½	4 13/16	1	5	75	**741.00**

These devices have standard base sizes and are interchangeable with products of other manufacturers of standard material in this class.

BUSS ONE-TIME ENCLOSED FUSES

N. E. Code Standard

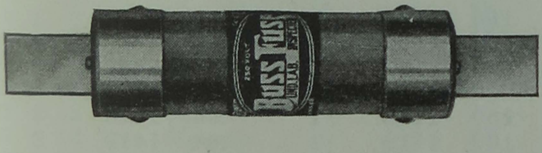
Buss One-time fuses are guaranteed, with good contact, to operate perfectly at any overload without charring or burning the fuse case.

An even greater degree of safety than Underwriters' requirements is made positive by the use of heavy brass caps and tight fitting, heavy wall tubes.

Label permanently attached to fuse tube. As added safeguard, amperage also stamped on cap.

1-60 Amperes—250 Volts

Mfrs. No.	Amp.	Length In.	Diam. Over Ferrule	Carton	Wt. Lb. Per 100	Price Each
25001	1	2	9/16	10	3.8	$0.15
25003	3	2	9/16	10	3.8	.15
25006	6	2	9/16	10	3.8	.15
25010	10	2	9/16	10	3.8	.15
25015	15	2	9/16	10	3.8	.15
25020	20	2	9/16	10	3.8	.15
25025	25	2	9/16	10	3.8	.15
25030	30	2	9/16	10	3.8	.15
25035	35	3	13/16	10	10	.30
25040	40	3	13/16	10	10	.30
25045	45	3	13/16	10	10	.30
25050	50	3	13/16	10	10	.30
25060	60	3	13/16	10	10	.30



70-600 Amperes—250 Volts

Mfrs. No.	Amp.	Length In.	Diam. of Tube	Carton	Wt. Lb. Per 100	Price Each
25070	70	5⅞	1	5	32	$0.90
25080	80	5⅞	1	5	32	.90
25090	90	5⅞	1	5	32	.90
25100	100	5⅞	1	5	32	.90
25110	110	7⅛	1½	1	79	2.00
25125	125	7⅛	1½	1	79	2.00
25150	150	7⅛	1½	1	79	2.00
25175	175	7⅛	1½	1	79	2.00
25200	200	7⅛	1½	1	79	2.00
25225	225	8⅝	2	1	165	3.60
25250	250	8⅝	2	1	165	3.60
25300	300	8⅝	2	1	165	3.60
25350	350	8⅝	2	1	165	3.60
25400	400	8⅝	2	1	165	3.60
25450	450	10⅜	2½	1	276	5.50
25500	500	10⅜	2½	1	276	5.50
25600	600	10⅜	2½	1	276	5.50

BUSS ONE-TIME ENCLOSED FUSES

N. E. Code Standard

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An even greater degree of safety than Underwriters' requirements is made positive by the use of heavy brass caps and tight fitting, heavy wall tubes.

Label permanently attached to fuse tube. As added safeguard, amperage also stamped on cap.

1-60 Amperes—600 Volts

Mfrs. No.	Amp.	Length In.	Diam. Over Ferrule	Carton	Wt. Lb. Per 100	Price Each
60001	1	5	13/16	10	14.5	$0.50
60003	3	5	13/16	10	14.5	.50
60006	6	5	13/16	10	14.5	.50
60010	10	5	13/16	10	14.5	.50
60015	15	5	13/16	10	14.5	.50
60020	20	5	13/16	10	14.5	.50
60025	25	5	13/16	10	14.5	.50
60030	30	5	13/16	10	14.5	.50
60035	35	5½	1 1/16	10	26	.80
60040	40	5½	1 1/16	10	26	.80
60045	45	5½	1 1/16	10	26	.80
60050	50	5½	1 1/16	10	26	.80
60060	60	5½	1 1/16	10	26	.80

70-600 Amperes—600 Volts

Mfrs. No.	Amp.	Length In.	Diam. of Tube	Carton	Wt. Lb. Per 100	Price Each
60070	70	7⅞	1¼	5	56	$1.80
60080	80	7⅞	1¼	5	56	1.80
60090	90	7⅞	1¼	5	56	1.80
60100	100	7⅞	1¼	5	56	1.80
60110	110	9⅝	1¾	1	124	3.50
60125	125	9⅝	1¾	1	124	3.50
60150	150	9⅝	1¾	1	124	3.50
60175	175	9⅝	1¾	1	124	3.50
60200	200	9⅝	1¾	1	124	3.50
60225	225	11⅝	2½	1	303	7.00
60250	250	11⅝	2½	1	303	7.00
60300	300	11⅝	2½	1	303	7.00
60350	350	11⅝	2½	1	303	7.00
60400	400	11⅝	2½	1	303	7.00
60450	450	13⅜	3	1	463	10.00
60500	500	13⅜	3	1	463	10.00
60600	600	13⅜	3	1	463	10.00

BUSS ONE-TIME INDICATING FUSES

Buss One-Time fuses may also be obtained in an indicating type that shows at a glance whether or not the fuse has blown.

Prices and further information will be gladly furnished.

BUSS SUPER-LAG RENEWABLE FUSES

N. E. C. Standard

3 to 60 Amperes

70 to 600 Amperes

Prevent money-wasting shutdowns . . . keep circuits in operation . . . keep machines running and workers on the job.

Patent fuse-case design and Super-Lag development prevent them from blowing needlessly.

Costs often cut in half on new motor installations because Code (Paragraph 4347) permits SMALLER SIZE fused safety switches, fuse panels or fuse blocks if BUSS Super-Lag fuses are used.

Every BUSS fuse carries inspection label of Underwriters' Laboratories.

		250-V. Fuses			600-V. Fuses		
Amp.	Carton Qty.	Cat. No.	Wt.Lbs. Per 100	Price Each	Cat. No.	Wt.Lbs. Per 100	Price Each
3	10	**1003**	5.5	**$0.40**	**1303**	18	**$1.00**
6	10	**1006**	5.5	**.40**	**1306**	18	**1.00**
10	10	**1010**	5.5	**.40**	**1310**	18	**1.00**
15	10	**1012**	5.5	**.40**	**1312**	18	**1.00**
20	10	**1013**	5.5	**.40**	**1313**	18	**1.00**
25	10	**1014**	5.5	**.40**	**1314**	18	**1.00**
30	10	**1015**	5.5	**.40**	**1315**	18	**1.00**
35	10	**1016**	14	**.80**	**1316**	36	**1.60**
40	10	**1017**	14	**.80**	**1317**	36	**1.60**
45	10	**1018**	14	**.80**	**1318**	36	**1.60**
50	10	**1019**	14	**.80**	**1319**	36	**1.60**
60	10	**1021**	14	**.80**	**1321**	36	**1.60**
70	5	**1023**	46	**1.80**	**1323**	83	**3.60**
80	5	**1025**	46	**1.80**	**1325**	83	**3.60**
90	5	**1027**	46	**1.80**	**1327**	83	**3.60**
100	5	**1029**	46	**1.80**	**1329**	83	**3.60**
110	1	**1030**	109	**4.00**	**1330**	183	**7.00**
125	1	**1031**	109	**4.00**	**1331**	183	**7.00**
150	1	**1032**	109	**4.00**	**1332**	183	**7.00**
175	1	**1033**	109	**4.00**	**1333**	183	**7.00**
200	1	**1034**	109	**4.00**	**1334**	183	**7.00**
225	1	**1035**	266	**7.20**	**1335**	373	**14.00**
250	1	**1036**	266	**7.20**	**1336**	373	**14.00**
300	1	**1038**	266	**7.20**	**1338**	373	**14.00**
350	1	**1040**	266	**7.20**	**1340**	373	**14.00**
400	1	**1042**	266	**7.20**	**1342**	373	**14.00**
450	1	**1043**	389	**11.00**	**1343**	573	**20.00**
500	1	**1044**	389	**11.00**	**1344**	573	**20.00**
600	1	**1046**	389	**11.00**	**1346**	573	**20.00**

BUSS SUPER-LAG RENEWAL LINKS

3 to 60 Amperes

70 to 600 Amperes

Super-Lag construction keeps them from blowing on harmless overloads that would blow ordinary fuses.

Give better protection because they permit fuseing nearer to load.

Come in one piece in all sizes. This makes renewal handy and prevents poor contact developing while fuse is in use.

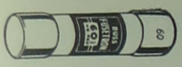
Packed in small quantity in sealed boxes for convenience and to prevent dust, moisture or oxidation from affecting them.

Interchangeable with all makes of standard fuse links.

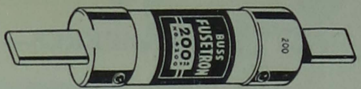
		250-V. Links			600-V. Links		
Amp.	Carton Qty.	Cat. No.	Wt.Lbs. Per 100	Price Each	Cat. No.	Wt.Lbs. Per 100	Price Each
3	100	**1103**	.25	**$0.02**	**1403**	1	**$0.05**
6	100	**1106**	.25	**.02**	**1406**	1	**.05**
10	100	**1110**	.25	**.02**	**1410**	1	**.05**
15	100	**1112**	.25	**.02**	**1412**	1	**.05**
20	100	**1113**	.25	**.02**	**1413**	1	**.05**
25	100	**1114**	.25	**.02**	**1414**	1	**.05**
30	100	**1115**	.25	**.02**	**1415**	1	**.05**
35	100	**1116**	1	**.04**	**1416**	3	**.08**
40	100	**1117**	1	**.04**	**1417**	3	**.08**
45	100	**1118**	1	**.04**	**1418**	3	**.08**
50	100	**1119**	1	**.04**	**1419**	3	**.08**
60	100	**1121**	1	**.04**	**1421**	3	**.08**
70	50	**1123**	2	**.09**	**1423**	5.3	**.18**
80	50	**1125**	2	**.09**	**1425**	5.3	**.18**
90	50	**1127**	2	**.09**	**1427**	5.3	**.18**
100	50	**1129**	2	**.09**	**1429**	5.3	**.18**
110	25	**1130**	5	**.20**	**1430**	14.6	**.35**
125	25	**1131**	5	**.20**	**1431**	14.6	**.35**
150	25	**1133**	5	**.20**	**1433**	14.6	**.35**
175	25	**1135**	5	**.20**	**1435**	14.6	**.35**
200	25	**1137**	5	**.20**	**1437**	14.6	**.35**
225	25	**1138**	11	**.36**	**1438**	29.	**.70**
250	25	**1139**	11	**.36**	**1439**	29.	**.70**
300	25	**1141**	11	**.36**	**1441**	29.	**.70**
350	25	**1143**	11	**.36**	**1443**	29.	**.70**
400	25	**1145**	11	**.36**	**1445**	29.	**.70**
450	10	**1146**	16	**.55**	**1446**	37.	**1.00**
500	10	**1147**	16	**.55**	**1447**	37.	**1.00**
600	10	**1149**	16	**.55**	**1449**	37.	**1.00**

BUSS FUSETRONS

250 AND 600 VOLT



0 to 60 Amp.



70 to 600 Amp.

Have same dimensions as fuses, but contain a thermal cutout as well as a fuse link.

FOR ALL TYPES OF CIRCUITS OR FEEDERS (motor, lighting, etc.) are highly desirable. Positively prevent damage to switches and panelboards from overheating. Thermal cutout always opens before excess heat can oxidize contact surfaces, take temper from clips or damage insulation—yet Fusetrons will not open needlessly.

ON MOTOR INSTALLATIONS Fusetrons are particularly advantageous. Their TREMENDOUSLY LONG TIME-LAG prevents them from blowing on starting currents or other harmless overloads—yet they give the same short-circuit protection as ordinary fuses.

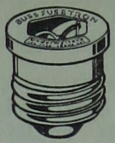
Fusetrons carry Underwriters' Laboratories label and are approved for both motor-running and circuit protection.

250 Volt					600 Volt		
No.	Lbs. Per 100	Price Each	Amp.	Carton	No.	Lbs. Per 100	Price Each
401	3½	$0.20	1	10	601	14	$0.50
4012	3½	.20	1.25	10	6012	14	.50
4016	3½	.20	1.6	10	6016	14	.50
402	3½	.20	2	10	602	14	.50
4025	3½	.20	2.5	10	6025	14	.50
4032	3½	.20	3.2	10	6032	14	.50
404	3½	.20	4	10	604	14	.50
405	3½	.20	5	10	605	14	.50
4062	3½	.20	6.25	10	6062	14	.50
408	3½	.20	8	10	608	14	.50
410	3½	.20	10	10	610	14	.50
412	5	.20	12	10	612	16	.50
415	5	.20	15	10	615	16	.50
420	5	.20	20	10	620	16	.50
425	5	.25	25	10	625	16	.60
430	5	.25	30	10	630	16	.60
435	12	.50	35	10	635	26	1.10
440	12	.50	40	10	640	26	1.10
445	12	.50	45	10	645	26	1.10
450	12	.50	50	10	650	26	1.10
460	12	.50	60	10	660	26	1.10
470	35	1.15	70	5	670	56	2.25
480	35	1.15	80	5	680	56	2.25
490	35	1.15	90	5	690	56	2.25
4100	35	1.15	100	5	6100	56	2.25
4110	88	2.50	110	1	6110	125	4.40
4125	88	2.50	125	1	6125	125	4.40
4150	88	2.50	150	1	6150	125	4.40
4175	88	2.50	175	1	6175	125	4.40
4200	88	2.50	200	1	6200	125	4.40
4225	182	4.50	225	1	6225	305	8.75
4250	182	4.50	250	1	6250	305	8.75
4300	182	4.50	300	1	6300	305	8.75
4350	182	4.50	350	1	6350	305	8.75
4400	182	4.50	400	1	6400	305	8.75
4450	304	7.00	450	1	6450	480	12.50
4500	304	7.00	500	1	6500	480	12.50
4600	304	7.00	600	1	6600	480	12.50

Many other sizes from 3/10 to 9 amperes can also be obtained at same price.

RETURN ALLOWANCE—Blown Fusetron (if in good condition otherwise) can be returned for credit of one-half. Such credit to apply ONLY against purchase of an equal list value of 35 to 600 ampere Fusetrons.

0 to 12 AMP. BUSS FUSETRONS



Insurance and inspection authorities and Underwriters' Laboratories object to the use of Edison base devices for motor protection—because all protection is lost if ordinary fuses or Fusetrons of too large a size are used. FUSTATS are recommended for this work. 4 in carton.

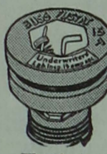
Amp.	No.	Price	Amp.	No.	Price
1.	701	$0.15	4.	704	$0.15
1.25	7012	.15	5.	705	.15
1.6	7016	.15	6.25	7062	.15
2.	702	.15	8.	708	.15
2.5	7025	.15	10.	710	.15
3.2	7032	.15	12.	712	.15

Packed 4 in a carton, weight 7.7 lbs. per 100.

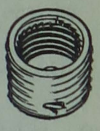
BUSS FUSTATS

0 TO 14 AMP.—FOR MOTOR, APPARATUS OR CIRCUIT PROTECTION

Operate like Fusetrons—Non-tamperable Base.



Fustat



Adapter

These Fustats meet the demand for a protective device that gives a motor running protection as well as short-circuit protection. They prevent over-fusing. Prevent use of pennies or slugs; practically impossible to bridge with tinfoil, wire or any other material.

Can be used in Edison base fuse holders by use of adapter which locks in place.

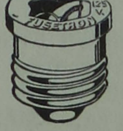
	FUSTAT		ADAPTER	
Amp.	No.	Price	No.	Price
1.	901	$0.15	A01	$0.07½
1.25	9012	.15	A012	.07½
1.6	9016	.15	A016	.07½
2.	902	.15	A02	.07½
2.5	9025	.15	A025	.07½
3.2	9032	.15	A032	.07½
4.	**904**	.15	**A04**	.07½
5.	**905**	.15	**A05**	.07½
6.25	**9062**	.15	**A062**	.07½
8.	**908**	.15	**A08**	.07½
10.	**910**	.15	**A10**	.07½
12.	912	.15	A15	.07½
14.	914	.15	A15	.07½

Sizes shown in bold face type are most popular. Many other sizes from 3/10 ampere up can be obtained. Adapters not included with Fustats—must be ordered separately.

BUSS FUSETRONS

15 TO 30 AMP.—FOR CIRCUIT PROTECTION

Stop Needless Blowing of Plug Fuses



Better than fuses for circuit protection. A combination fuse and thermal cutout with long time-lag that gives complete protection yet will not blow when motors on washing machines, refrigerators, and such appliances start.

Abolish unsafe practice of using oversize fuses to stop needless blowing. A Fusetron holds like a large fuse when safety permits, yet opens like a small fuse when safety demands.

For circuit protection on voltages up to 125.

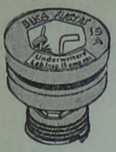
Amp.	No.	Price	Amp.	No.	Price
15	715	$0.07½	25	725	$0.07½
20	720	.07½	30	730	.07½

Packed 4 in a box.

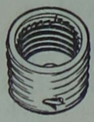
BUSS FUSTATS

15 TO 30 AMP.—FOR CIRCUIT PROTECTION

Operate like Fusetrons—Non-tamperable Base.



Fustat

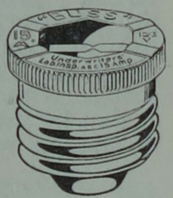


Adapter

The Fustat is a fuse to which a thermal cutout is added, and which resists tampering and over-fusing. Makes safe protection remain safe. Stops loss of money on needless "blown-fuse" service calls. Permits adding more appliances to present circuits. Stops use of pennies or slugs; practically impossible to bridge with tinfoil, wire or any other material. A 20, 25, or 30 ampere size will not fit in a 15-ampere receptacle or adapter. Can be used in Edison base receptacles by use of adapter. Adapters not included with Fustats, must be ordered separately. For circuit protection on voltages up to 125.

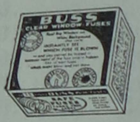
	FUSTAT		ADAPTER	
Amp.	No.	Price	No.	Price
15	915	$0.07½	A15	$0.07½
20	920	.07½	A20	.07½
25	925	.07½	A30	.07½
30	930	.07½		

BUSS CLEAR WINDOW PLUG FUSES



The market's most popular fuse. Real big window and white background allow you to instantly see which fuse is blown—and you cannot be fooled—because none of the fuse strip is hidden like in most fuses which might blow and not show.

Every BUSS Fuse is tested twice in an electrical circuit to guarantee that it will operate properly under all conditions.



BUSS Fuses are packed 5 in a convenient educational box. Information printed on the box tells user what to do when a fuse blows. The box also provides an emergency supply when a fuse blows.

Cat. No.	Amp.	Wt. Lbs. Per 1000	Price Each	Cat. No.	Amp.	Wt. Lbs. Per 1000	Price Each
801	1	65	$0.05	810	10	65	$0.05
803	3	65	.05	815	15	65	.05
805	5	65	.05	820	20	65	.05
806	6	65	.05	825	25	65	.05
808	8	65	.05	830	30	65	.05

BUSS LOCK-OUT PLUGS

The Buss lock-out plugs were designed to provide an inexpensive and effective means of disconnecting the electric service. Can be installed and removed quickly and safely by any authorized person. Made of bakelite, it can be re-used indefinitely. Its design and construction is such as to provide a very long life.

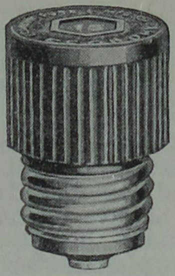
While the mica window must be broken to remove the plug, it can be replaced or covered at very little expense.

Type ED Lock-out Plug, for Edisonbase, ea.	$0.22
Type FU Lock-out Plug, for 15, 20 and 30-amp. Fustat base, each	.22
Key, each	.10
Brass Caps (for Type ED) with full-size darkened mica windows, each	.02
Brown Caps (for Type FU) with full-size darkened mica windows, each	.02
Re-capping Tool, each	8.00
Small Gummed Mica Windows, each	.01
Re-capping customer's plugs, each	.04

ECONOMY RENEWABLE PLUG FUSES

N. E. Code Standard

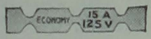
3-30 AMPERES—125 VOLTS

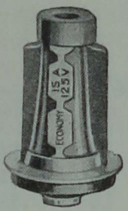


Mfrs. No.	Cap. Amps.	Carton	Price Each
PF-1068	10	10	$0.25
PF-1568	15	10	.25
PF-2068	20	10	.25
PF-2568	25	10	.25
PF-3068	30	10	.25

Maximum quantity weight, 1¼ pounds.

RENEWAL LINKS—PLUG TYPE





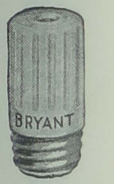
Mfrs. No.	Capacity Amperes	Carton	Price Each
PR-6810	10	100	$0.02
PR-6815	15	100	.02
PR-6820	20	100	.02
PR-6825	25	100	.02
PR-6830	30	100	.02

Maximum carton quantity weight, 2 ounces.

BRYANT SCREW PLUG CASING

N. E. C. Standard

FOR CARTRIDGE FUSES



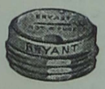
Cartridge fuses sizes 1–30 amperes, 250 volts may be used with this casing. They must be ordered separately accordingly to capacity desired.

For Fuses 1-30 Amperes, 125 Volts

Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
1945	10	100	14	$22.00

NEUTRAL WIRE FUSELESS PLUG

30 Amperes, 125 Volts

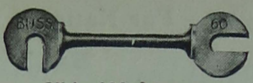


Can be inserted in neutral fuse receptacle of triple-pole cut-out base and soldered in place thus providing means for compliance with Sections 2405 and 2409 of the 1937 edition of the National Electrical Code which requires the omission of fuses from the grounding side of the line.

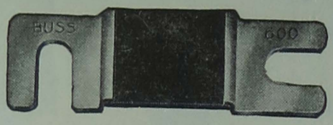
Mfrs. No.	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
559	75	300	10	$7.50

BUSS OPEN LINK FUSES

1 to 30 Amperes
Terminal No. 1



35 to 100 Amperes
Terminal No. 3 or 5



110 to 1000 Amperes
Terminal No. 7, 16, 10, 28

Amperes	Standard Terminal No.	Standard Terminal Slot In.	Standard Terminal Width In.	Other Terminal	*Net Price
1 to 30	1	5/32	3/8	3	**$0.025**
35 to 60	3	3/16	9/16	5	**.035**
65 to 100	5	1/4	11/16	7	**.05**
110 to 200	7	3/8	3/4	16	**.08**
225 to 400	16	7/16	1 1/32	10	**.15**
450 to 600	10	1/2	1 3/8	16	**.30**
650 to 1000	28	5/8	2 1/16	10	**.60**

***A set-up charge of $1.50 for each size and type fuse ordered on each shipment is made in addition to the net prices per fuse shown.**

In ordering, be sure to specify exact amperage and centers desired. Unless otherwise specified, standard terminals as above listed will be furnished. The terminals listed under heading "Other Terminals" can also be obtained without additional cost.

BUSS FUSE WIRE AND FUSE STRIP

BUSS
FUSE WIRE
ONE POUND
30
BUSSMANN MFG. CO.
ST. LOUIS

Buss fuse wire and strip will carry indefinitely current shown under heading "Capacity" and will open the circuit when subjected to current 25 per cent in excess thereof.

This is based on a distance between contacts or terminals, of two (2) inches. When used on contacts of other distances, the carrying capacity is affected approximately as follows:

Will Carry More Current		Will Carry Less Current	
½ Inch	100% More	2½ Inch	5% Less
¾ Inch	70% More	3 Inch	10% Less
1 Inch	45% More	4 Inch	15% Less
1¼ Inch	30% More	5 Inch	20% Less
1½ Inch	15% More	6 Inch	25% Less

BUSS FUSE WIRE

Size Amperes	Diam. Inches	Carrying Capacity Amperes	Feet Per Lb.	*Quantity on Spool	List Price Per Lb.
¼	.0045	.45	12920	250*	**$100.00**
½	.010	1.25	2616	½	**10.00**
1	.016	2.2	1020	½	**4.00**
2	.025	4.3	420	½	**3.50**
3	.031	6	273	½	**3.00**
5	.039	8	172	1	**2.25**
6	.042	9	148	1	**2.25**
10	.055	14	87	1	**2.00**
15	.068	20	57	1	**2.00**
20	.082	27	39	1	**1.50**
25	.094	33	30	1	**1.50**
30	.103	38	25	1	**1.50**
40	.122	49	17.6	1	**1.50**
50	.137	59	14	1	**1.50**
60	.158	75	10.5	1	**1.50**
70	.170	85	9	1	**1.50**
80	.189	101	7.3	1	**1.50**
90	.212	125	5.8	1	**1.50**
100	.226	141	5.1	1	**1.50**

*Quantity on spools is in pounds, except ¼-ampere size, which is in feet.

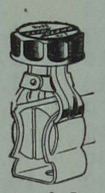
BUSS FUSE STRIP

Packed in 5 pound cans. All in one piece. Each strip is marked at the inner end of the coil with the ampere rating.

Size Amperes	Width Inches	Thickness Inches	Carrying Capacity Amperes	Feet Per Lb.	List Price Per Lb.
100	1	.028	125	7.3	**$1.50**
125	1	.035	155	5.8	**1.50**
150	1	.043	180	4.7	**1.50**
175	1	.051	200	4	**1.50**
200	1	.059	225	3.5	**1.50**
250	1	.075	285	2.7	**1.50**
300	1	.092	340	2.2	**1.50**
350	1	.110	405	1.9	**1.50**
400	1	.128	440	1.6	**1.50**
500	1	.166	545	1.2	**1.50**
600	1	.204	625	1	**1.50**

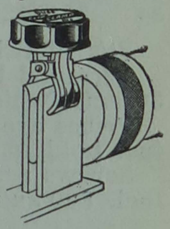
BUSS CLIP-CLAMPS

Insure Good Contact Between Clips and Fuses or Fusetrons



Prevent needless blowing of fuses by eliminating heating from poor contact that often causes fuses to blow.

Reduce needless destruction of fuse-cases by preventing poor contact from burning up the fibre tube and destroying the fuse. This usually makes a material cut in fuse bills.

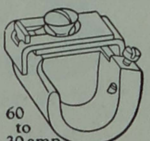


Makes replacement of fuse-clips unnecessary. Generally permits even injured clips to be used with perfect satisfaction.

Built for hard service and to prevent corrosion, all steel parts are heavily cadmium plated.

Cat. No.	Size of Clamp	Carton Qty.	Wt. Lbs. Per 100	Price Each
1	0- 30 amp. 250 volt	12	5	**$0.40**
2	31- 60 amp. 250 volt 0- 30 amp. 600 volt	12	8	**.60**
4	31- 60 amp. 600 volt	12	12	**.85**
5	61-100 amp.	12	10	**.75**
6	101-200 amp.	6	21	**1.25**
7	201-400 amp.	6	31	**1.75**
8	401-600 amp.	6	42	**2.50**

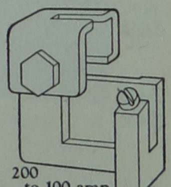
BUSS FUSE REDUCERS



60 to 30 amp.

Make it possible to use fuses or Fusetrons of a size smaller than the fuse clips are intended to hold.

Fit in any panel or switch as reducers take up no more space than would a fuse of a size to fit clips.



200 to 100 amp.

Poor contact troubles are entirely eliminated because these reducers provide clamp contact throughout.

Reducers fit any form of clip, either the spring type or clamp type.

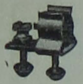
Packed—one pair in a carton.

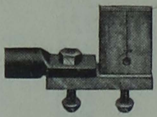
Volts	Amp. Rating	No.	Price per pair
250 Volt	60 to 30	263	**$0.40**
250 Volt	100 to 60	216	**.65**
600 Volt	60 to 30	663	**.70**
600 Volt	100 to 60	616	**1.15**
600 Volt	100 to 30	Use No. 216	
250 or 600 V.	200 to 100	2621	**1.35**
250 or 600 V.	400 to 200	2642	**2.00**

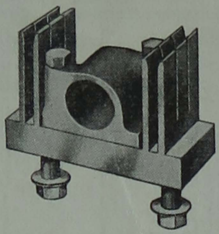
FUSE HOLDERS

For National Electrical Code Fuses

FRONT CONNECTION


0 to 60 Amp.


61 to 600 Amp.


601 to 1200 Amp.

Cat. No.	Amperes	Type	Volt	Price Per Holder Plain	Price Per Holder Polished
25	0–30	A-B	250	**$0.42**	**$0.54**
26	31–60	A-B	250	**.68**	**.84**
27	0–30	A-B	600	**.48**	**.62**
28	31–60	A-B	600	**.74**	**.96**
23	61–100	B	250–600	**.90**	**1.10**
24	101–200	B	250–600	**1.50**	**1.90**
29	61–100	A	250–600	**1.10**	**1.30**
30	101–200	A	250–600	**1.70**	**2.10**
31	201–400	A	250–600	**4.00**	**4.70**
32	401–600	A	250–600	**5.30**	**6.10**
33	601–800	A	250–600	**8.60**	**10.10**
34	801–1200	A	250–600	**11.00**	**13.10**

Plain finish is shipped when not specified.

Terminal lugs are furnished on all sizes except 30 amp. which have wire binding washers.

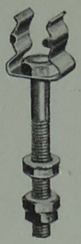
Prices are per holder. Each pole requires two fuse holders.

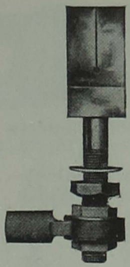
Screws are for ½-inch board on 30 to 600 amp. incl. 800 and 1200 amp. screws are for inch board.

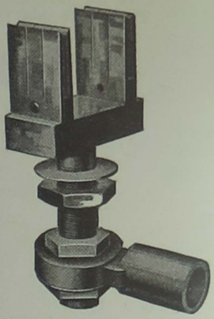
FUSE HOLDERS

For National Electrical Code Fuses

BACK CONNECTION


0 to 60 Amp.


61 to 600 Amp.


601 to 1200 Amp.

Cat. No.	Amperes	Volt	Price Per Holder Plain	Price Per Holder Polished
35	0–30	250	**$0.42**	**$0.52**
36	31–60	250	**.72**	**.84**
37	0–30	600	**.48**	**.62**
38	31–60	600	**.78**	**.96**
39	61–100	250–600	**1.70**	**1.90**
40	101–200	250–600	**2.50**	**2.90**
41	201–400	250–600	**5.90**	**6.70**
42	401–600	250–600	**8.40**	**9.50**
43	601–800	250–600	**15.80**	**17.20**
44	801–1200	250–600	**21.00**	**23.10**

Plain finish is shipped when not specified.

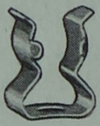
Terminal lugs are furnished on all sizes except 30 amp.

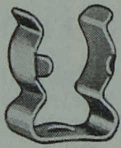
Prices are per holder. Each pole requires two fuse holders.

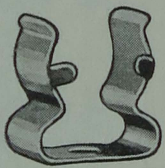
Standard studs fit any board from ½ inch to 2 inches thick.

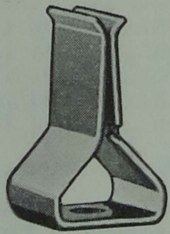
FUSE CLIPS

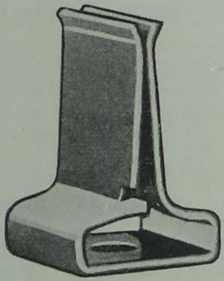
For National Electrical Code Fuses


Midget


30 Amp.


60 Amp.


100 Amp.


200 Amp.

Cat. No.	Amperes	Wt. per 1000	Dia. Hole	Carton Qty.	Price Per 1000 Less Carton	Price Per 1000 Carton	Price Per 1000 1000
499	Midget	5	$\frac{3}{16}$	100	**$75.00**	**$70.00**	**$67.00**
			250 Volt—Ferrule Type				
540	0–30	12	$\frac{13}{64}$	200	**25.80**	**18.90**	**17.10**
542	31–60	30	$\frac{15}{64}$	75	**57.70**	**42.40**	**38.50**
			600 Volt—Ferrule Type				
541	0–30	30	$\frac{15}{64}$	100	**57.70**	**42.40**	**38.50**
543	31–60	40	$\frac{15}{64}$	50	**70.00**	**51.40**	**46.70**
			250 and 600 Volt—Knife Blade Type				
544	61–100	80	$\frac{9}{32}$	40	**111.00**	**81.50**	**74.20**
545	101–200	190	$\frac{11}{32}$	20	**256.00**	**188.00**	**171.00**

Midget, 30 and 60 ampere are phosphor bronze burnished.
100 and 200 ampere are spring temper copper dip and lacquer finish.
Special stud hole add **$1.00** per hundred list for any size.
Cadmium plated add 15% to list price. Nickel plated add 10% to list price.

SELF STARTING ALL-ELECTRIC TORK CLOCKS

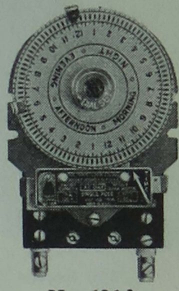
For Use on Alternating Current Only

For Turning Anything Electrical On and Off Regularly

New Powerful P Type Self-Starting Motor Has All Fast Moving Gears, Rotor and Coil Sealed in Oil — Dust-Tight

FOUR LITTLE GIANT MODELS

Cat. No.	ON and OFF Daily	List Price
191A	20 Ampere Single Pole (2200 watts)	$12.00
1191	35 Ampere Single Pole (3800 watts)	13.00
962A	20 Amperes Per Pole, Double Pole (4400 watts, divided)	14.00
1962	35 Amperes Per Pole, Double Pole (7500 watts, divided)	15.00

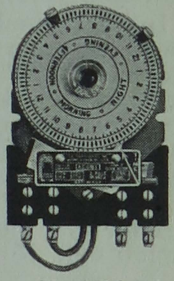


No. 191A

For Heavy-Duty*

(Up to 100 Amperes per Pole)

Cat. No.		List Price
143	7½ Kw. 3 Pole, 25 Amperes per pole	$36.00
144	10 Kw. 3 Pole, 25 Amperes per pole	40.00
162	10 Kw. 2 Pole, 50 Amperes per pole	48.00
163	12 Kw. 3 Pole, 50 Amperes per pole	51.00
192	18 Kw. 2 Pole, 100 Amperes per pole	73.00
193	23 Kw. 3 Pole, 100 Amperes per pole	82.00



No. 962A

*These combinations consist of a No. 191A Tork Clock that controls the holding coil of the contactor and a completely enclosed magnetic contactor of the capacities indicated. Be certain to specify operating voltage and cycles.

To order Clocks equipped with "Twice-a-Day" Dials add the letter "D" to the catalog number and **$0.50** to the list price.

For three ON and three OFF operations, add the letter "T" and **$1.00** to the price.

If four, five or six ON and OFF operations are desired, special dials can be made having fixed OFF pins and movable ON arms; add the letter "X" to the catalog number and **$3.00** to the price. These fixed OFF pins cannot be placed closer together than two hours apart and we must know exactly at which time they should operate.

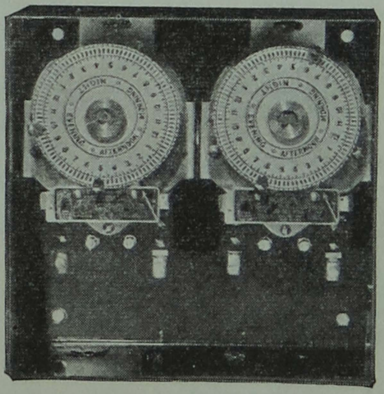
Standard Case For Single Circuit Models

APARTMENT HOUSE HALL LIGHTS—POULTRY "BRIGHT" AND "DIM" LIGHTING SPECIAL SCHEDULES AND COMBINATIONS

There are standard combinations of Tork Clocks that take care of almost every requirement where two circuits must be controlled at different times. By the addition of "D" or "T" dials (twice-a-day operation) all sorts of combinations can be worked out. Each circuit can be operated and controlled absolutely independently.

Cat. No.	Description	List Price
3191/91	Two single pole circuits, 2200 watts each	$22.50
3119/19	Two single pole circuits, 3000 watts each	24.50
3962/91	A double pole circuit of 4400 watts capacity and a single pole circuit of 2200 watts capacity	25.00
3962/62	Two double pole circuits each with a capacity of 4400 watts	27.00

The above clocks are housed in pressed steel cases finished in aluminum. They are 8 inches high by 8 inches wide by 3½ inches deep. Weight 11 pounds.



3191/31 Two-Circuit Clock

TORK CLOCKS FOR USE ON DIRECT CURRENT OR UNREGULATED A.C.

Eight Day Hand-Wound Movements
15 Ampere Single Pole Switch

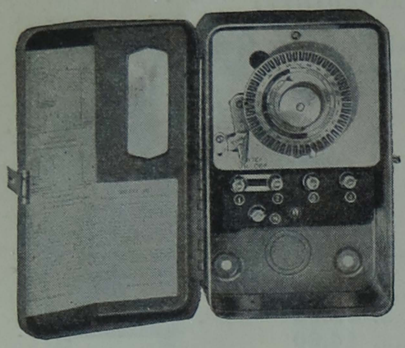
This hand-wound clock mechanism has been designed particularly for switching direct current. The switch is the latest design of the unbreakable mercury tube type also particularly adapted for use on direct current.

No. 391H	In Pressed Steel Case	$25.00 list
No. 591H	In Weatherproof Case	30.00 list

Listed and Approved by Underwriters' Laboratories, Re-examination Service

PARAGON TIME SWITCHES

SYNCHRONOUS — KEY-WOUND



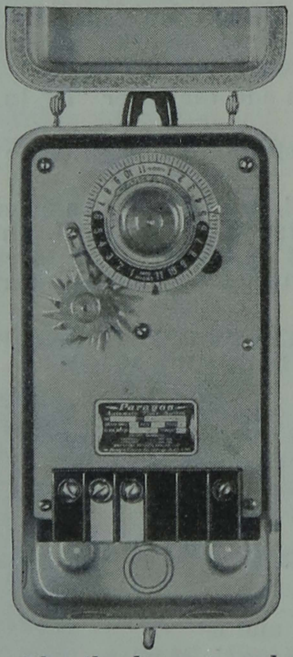
300 Series Time Switch

Paragon Time Switches are recognized as being the most economical not only in first cost but also in installation and servicing.

The outstanding characteristics of Paragon Time Switches are simplicity and dependability. Easy to install and to adjust, they rarely require any attention.

In the popular synchronous models the slow speed, self-starting, self-lubricating motor drives the "clear-line" 24-hour dial and tripper assembly through a clock train of only four cut gears. The non-slip trippers operate the silver button contact, snap-action switch by means of the noted Paragon "star wheel" control, without cams or levers. Two to six operations daily.

Time dial and trippers are set and adjusted by thumb nut. No tools needed.



Cases are pressed from 16-gauge steel and have 5 push-outs for conduit connection. Doors, through cork gasket and compression lock, are dust-tight and moisture-proof. Outside models have weatherproof finish and a window to check operation.

Synchronous models are made for 60-cycle tuned A.C. circuits, in both 115 and 230 volts.

Key-wound models have a fine eight-day spring-powered clock movement — to be used on D.C. installations or where A.C. circuits are erratic.

All Paragon Time Switches carry full Underwriters' Laboratories approval for their rated capacities. They are designed, built and guaranteed by the largest exclusive time-control manufacturers in the country.

300 Series Time Switches

The Paragon 300 Series Time Switches mark another forward step in the time switch field. They are the modern answer to the definite need for a line of lower priced time switches that are truly dependable and not temporary make-shifts.

Standard models are equipped for one "on" and one "off" operation daily, but can be supplied for two "on" and "off" operations where required at no added cost. Operations may be set as close as approximately two hours apart.

STRAIGHT ON AND OFF TYPES

Synchronous

Cat. No.	Poles	Amps. Per Pole	Volts	Case	Price Each
301	1	30	115	Indoor	**$13.00**
302	1	15	230	Indoor	**14.00**
303	2	30	115	Indoor	**15.00**
304	2	15	230	Indoor	**16.00**
G11115*	1	40	115	Indoor	**16.50**
G11230*	1	25	230	Indoor	**16.50**
G25115	1	40	115	Indoor	**18.50**
GO-25115	1	40	115	Outdoor	**20.00**
G25230	1	25	230	Indoor	**19.50**
GO-25230	1	25	230	Outdoor	**20.00**
G40115	2	40	115	Indoor	**21.50**
GO-40115	2	40	115	Outdoor	**22.50**
G40230	2	25	230	Indoor	**22.50**
GO-40230	2	25	230	Outdoor	**22.50**
G752115	2	75	115	Indoor	**65.00**
G752230	2	75	230	Indoor	**65.00**
G1502115	2	150	115	Indoor	**75.00**
G1502230	2	150	230	Indoor	**75.00**

Key-Wound

Cat. No.	Poles	Amps. Per Pole	Volts	Case	Price Each
A	1	40	115	A.C.	**25.00**
B	2	30	115	A.C.-D.C.	**30.00**

TWO-CIRCUIT TYPES

115 Volt, 60 Cycle A.C. Synchronous

Cat. No.	Amps. Per Pole	Sequence of Operation	Price Each
G-1	10	Both On—1 Off—Both Off	**$23.50**
G-140	40	Both On—1 Off—Both Off	**26.00**
G-2	10	1 On—Both On—Both Off	**23.50**
G-240	40	1 On—Both On—Both Off	**26.00**
G-3	15	3-Way Instant. 2-Circuit Trans.	**19.50**
G-340	40	3-Way Instant. 2-Circuit Trans.	**22.00**
G-4	10	1 On—Both On—No. 1 Off—Both Off	**23.50**
G-440	40	1 On—Both On—No. 1 Off—Both Off	**26.00**
G-5	15	1 On—No. 1 Off—No. 2 On—No. 2 Off	**23.50**
G-540	40	1 On—No. 1 Off—No. 2 On—No. 2 Off	**26.00**
G-6	10	1 On—Both On—No. 2 Off—Both Off	**23.50**
G-640	40	1 On—Both On—No. 2 Off—Both Off	**26.00**

For Switching Day-Night Low Voltage Thermostats

G-7	....	Single Pole—Double Throw	**19.50**
G-27	....	Double Pole—Double Throw	**24.50**

For Poultry House Lighting

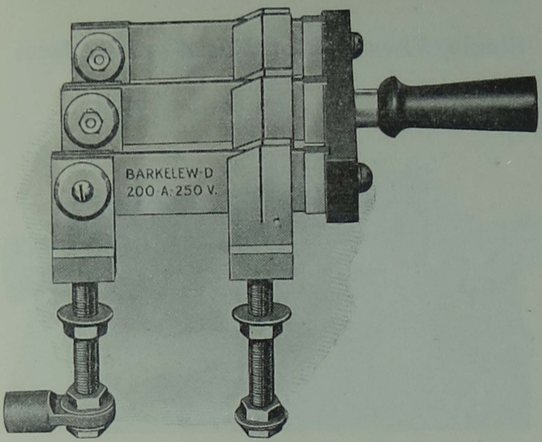
PS	Synchronous, 15-pole, Morning-and-Night with Night Dimming	**18.50**
PSN	Synchronous, 15-pole, Night Only with Dimming	**18.50**
P	Key-Wound, 15-pole. Morning-and-Night with Night Dimming	**25.00**

*Nipple mounting only. All others wall mounting.

TYPE D SWITCHES

BACK CONNECTION—POLISHED FINISH

Single Throw—Not Fused—Low Jaws



250 Volt DC—500 Volt AC

ONE POLE			AMPERES		TWO POLE		
Cat. No.	Net Wt. Ea. Lb.	Price Each	DC	AC	Cat. No.	Net Wt. Ea. Lb.	Price Each
8010	½	**$2.00**	*30	*30	**8020**	¾	**$3.70**
8011	1	**3.00**	†30	†30	**8021**	1½	**5.40**
8012	1	**3.10**	60	60	**8022**	1½	**5.70**
8013	1½	**5.30**	100	100	**8023**	3	**9.70**
8014	2½	**8.20**	200	200	**8024**	5	**14.90**
8006	3½	**12.50**	300	300	**8007**	8	**22.70**
8015	5	**17.90**	400	400	**8025**	13	**32.50**

THREE POLE			AMPERES		FOUR POLE		
Cat. No.	Net Wt. Ea. Lb.	Price Each	DC	AC	Cat. No.	Net Wt. Ea. Lb.	Price Each
8030	1	**$5.60**	*30	*30	**8040**	1½	**$7.60**
8031	2¼	**8.10**	†30	†30	**8041**	2¾	**11.10**
8032	2¼	**8.60**	60	60	**8042**	2¾	**11.70**
8033	4¼	**14.60**	100	100	**8043**	6	**19.90**
8034	8	**22.40**	200	200	**8044**	12	**30.50**
8008	12	**34.00**	300	300	**8009**	15	**46.50**
8035	19	**49.00**	400	400	**8045**	26	**66.50**

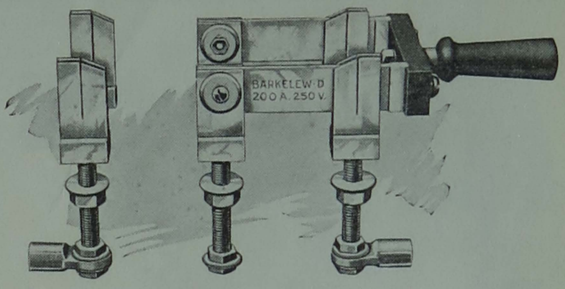
*For 250 Volt DC and AC. †For 500 Volt AC.

Advise thickness of panel when ordering.

TYPE D SWITCHES

BACK CONNECTION—POLISHED FINISH

Double Throw—Not Fused—Low Jaws



250 Volt DC—500 Volt AC

ONE POLE			AMPERES		TWO POLE		
Cat. No.	Net Wt. Ea. Lb.	Price Each	DC	AC	Cat. No.	Net Wt. Ea. Lb.	Price Each
9010	½	**$2.90**	*30	*30	**9020**	1	**$5.30**
9011	1½	**4.00**	†30	†30	**9021**	2	**7.30**
9012	1½	**4.30**	60	60	**9022**	2	**7.80**
9013	2	**7.40**	100	100	**9023**	4	**13.40**
9014	4	**11.80**	200	200	**9024**	7	**21.40**
9006	5	**18.20**	300	300	**9007**	11	**33.00**
9015	7	**26.00**	400	400	**9025**	17	**47.50**

THREE POLE			AMPERES		FOUR POLE		
Cat. No.	Net Wt. Ea. Lb.	Price Each	DC	AC	Cat. No.	Net Wt. Ea. Lb.	Price Each
9030	1½	**$8.00**	*30	*30	**9040**	2	**$10.90**
9031	2¾	**11.00**	†30	†30	**9041**	3½	**15.00**
9032	2¾	**11.70**	60	60	**9042**	3½	**16.00**
9033	5½	**20.10**	100	100	**9043**	8	**27.50**
9034	10	**32.00**	200	200	**9044**	15	**44.00**
9008	15	**49.50**	300	300	**9009**	20	**67.50**
9035	24	**71.50**	400	400	**9045**	35	**97.50**

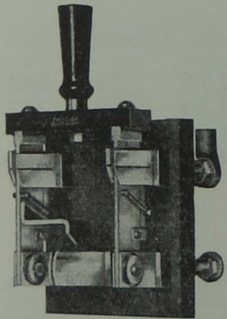
*For 250 Volt DC and AC. †For 500 Volt AC.

Advise thickness of panel when ordering.

TYPE D FIELD DISCHARGE SWITCHES

BACK CONNECTION — POLISHED FINISH

Unmounted — Quick Break



Field Discharge Switches are to overcome the high pressure inductive kick caused by suddenly opening a generator field. When opening the generator circuit they close the field across a resistance allowing the inductive discharge to die out gradually, thus preventing a rupture of field insulation. Prices do not include resistance.

SINGLE THROW — 250 VOLTS

One Pole				Two Pole		
Cat. No.	Net Wt. Ea. Lb.	Price Each	Amperes	Cat. No.	Net Wt. Ea. Lb.	Price Each
530	1½	**$13.00**	60	**534**	2¼	**$21.00**
531	2	**16.40**	100	**535**	3¾	**26.50**
532	3½	**23.10**	200	**536**	6¼	**37.00**
754	7	**30.00**	300	**756**	10	**49.50**
533	7¼	**37.00**	400	**537**	15½	**61.00**
755	11½	**48.00**	600	**757**	20	**70.00**

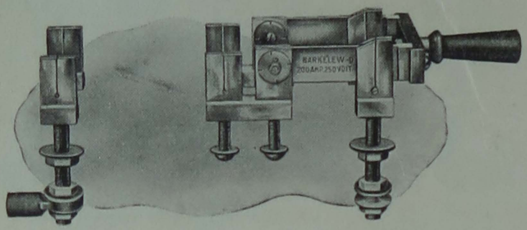
DOUBLE THROW — 250 VOLTS

Cat. No.	Net Wt. Ea. Lb.	Price Each	Amperes	Cat. No.	Net Wt. Ea. Lb.	Price Each
574	2	**$21.00**	60	**578**	2¾	**$33.50**
575	2½	**29.50**	100	**579**	4¾	**49.00**
576	5	**42.00**	200	**580**	8¼	**58.00**
758	8	**52.00**	300	**760**	13	**70.00**
577	9¼	**60.00**	400	**581**	19½	**87.00**
759	14	**77.00**	600	**761**	26	**112.00**

TYPE D SWITCHES

BACK CONNECTION—POLISHED FINISH

Single Throw—Fusible at Bottom—Low Jaws



250 Volt DC—250 Volt AC

ONE POLE				TWO POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
8111	¾	**$2.40**	30	**8121**	1	**$4.30**
8112	1	**3.80**	60	**8122**	1¾	**6.90**
8113	2	**7.00**	100	**8123**	3¼	**12.80**
8114	4	**10.60**	200	**8124**	6¼	**19.30**
8115	8	**22.80**	400	**8125**	16	**41.50**
8116	12	**32.50**	600	**8126**	24	**59.50**

THREE POLE				FOUR POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
8131	1¼	**$6.50**	30	**8141**	2	**$8.80**
8132	2½	**10.40**	60	**8142**	3½	**14.10**
8133	5¼	**19.20**	100	**8143**	7	**26.00**
8134	9	**29.00**	200	**8144**	13	**39.50**
8135	22	**62.50**	400	**8145**	31	**85.00**
8136	39	**89.50**	600	**8146**	52	**122.00**

500 Volt AC

ONE POLE				TWO POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
8411	¾	**$4.00**	30	**8421**	1	**$7.30**
8412	1	**4.50**	60	**8422**	1¾	**8.10**
8413	2	**7.50**	100	**8423**	3¼	**13.70**
8414	4	**11.40**	200	**8424**	6¼	**20.70**
8415	8	**24.20**	400	**8425**	16	**44.00**
8416	12	**33.50**	600	**8426**	24	**60.50**

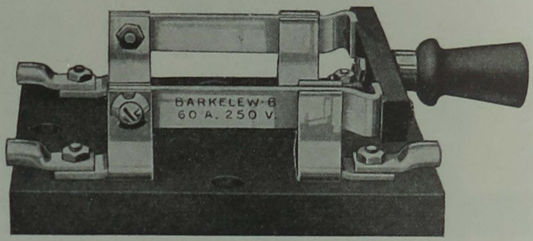
THREE POLE				FOUR POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
8431	1½	**$10.90**	30	**8441**	2	**$14.90**
8432	2½	**12.20**	60	**8442**	3¼	**16.70**
8433	5	**20.60**	100	**8443**	6½	**28.00**
8434	9¼	**31.00**	200	**8444**	12	**42.50**
8435	22½	**66.00**	400	**8445**	30½	**90.50**
8436	38¾	**90.50**	600	**8446**	52¼	**124.00**

Advise thickness of panel when ordering.

TYPE B SWITCHES

FRONT CONNECTION—PLAIN FINISH

Single Throw—Not Fused—Low Jaws



250 Volt DC—500 Volt AC

ONE POLE				TWO POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3101	¾	**$0.70**	*30	**3151**	1¼	**$1.10**
3101½	1½	**1.10**	†30	**3151½**	2¾	**1.70**
3102	1½	**1.30**	60	**3152**	3	**2.00**
3104	2½	**2.70**	100	**3154**	5½	**4.00**
3105	4	**4.90**	200	**3155**	10¼	**7.30**

THREE POLE				FOUR POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3201	2½	**$1.70**	*30	**3251**	4	**$2.30**
3201½	4	**2.60**	†30	**3251½**	7¼	**3.50**
3202	4¼	**3.00**	60	**3252**	7½	**4.10**
3204	8	**6.00**	100	**3254**	12	**8.20**
3205	15½	**11.00**	200	**3255**	20	**15.00**

600 Volt DC—600 Volt AC

ONE POLE				TWO POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3411	2¼	**$2.70**	30	**3421**	5	**$4.00**
3412	2½	**3.20**	60	**3422**	5½	**4.50**
3414	3½	**4.50**	100	**3424**	8	**6.80**
3415	5½	**9.30**	200	**3425**	13	**14.00**

THREE POLE				FOUR POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3431	6½	**$6.00**	30	**3441**	9	**$8.30**
3432	7½	**7.20**	60	**3442**	10	**9.90**
3434	13	**10.30**	100	**3444**	18	**14.00**
3435	23	**21.00**	200	**3445**	30	**29.00**

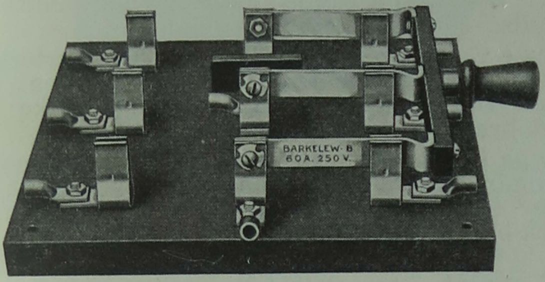
*For 250 Volt DC and AC.

†For 500 Volt AC.

TYPE B SWITCHES

FRONT CONNECTION—PLAIN FINISH

Double Throw—Not Fused—Low Jaws



250 Volt DC—500 Volt AC

ONE POLE				TWO POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3106	1¼	$1.30	*30	3156	3	$1.90
3106½	2½	1.80	†30	3156½	5	2.70
3107	2½	2.10	60	3157	5¼	3.20
3109	4	4.90	100	3159	8½	7.30
3110	8	8.10	200	3160	16	12.10

THREE POLE				FOUR POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3206	4	$2.90	*30	3256	7	$3.90
3206½	7¼	4.10	†30	3256½	12	5.50
3207	7½	4.80	60	3257	12½	6.60
3209	12	11.00	100	3259	18	15.00
3210	22	18.20	200	3260	28	24.80

600 Volt DC—600 Volt AC

ONE POLE				TWO POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3416	2¾	$3.70	30	3426	9	$5.60
3417	3	4.30	60	3427	10	6.40
3419	4½	8.20	100	3429	14	11.00
3420	8	13.20	200	3430	22	19.80

THREE POLE				FOUR POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3436	14	$8.40	30	3446	18	$11.50
3437	15½	9.60	60	3447	20	13.10
3439	22	17.00	100	3448	30	24.00
3440	36	29.50	200	3449	24	41.00

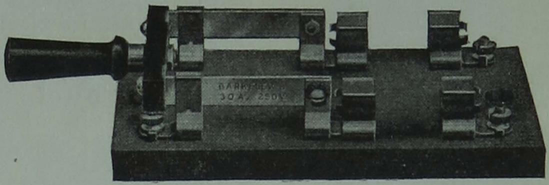
*For 250 Volt DC and AC.

†For 500 Volt AC.

TYPE B SWITCHES

FRONT CONNECTION—PLAIN FINISH

Single Throw—Fusible at Bottom—Low Jaws



250 Volt DC—250 Volt AC

ONE POLE				TWO POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb	Price Each
3111	1	$1.00	30	3161	2½	$1.60
3112	2½	1.80	60	3162	3	2.70
3114	5	3.60	100	3164	8½	5.50
3115	7½	6.80	200	3165	16	10.20

THREE POLE				FOUR POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3211	3½	$2.40	30	3261	6½	$3.30
3212	4¾	4.10	60	3262	10½	5.50
3214	13¼	8.30	100	3264	20	11.20
3215	24	15.30	200	3265	36	20.80

500 Volt AC

ONE POLE				TWO POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3311	2¼	$2.00	30	3321	5½	$3.00
3312	3	2.50	60	3322	9	3.80
3314	5½	5.00	100	3324	14	7.50
3315	8½	8.80	200	3325	22	13.10

THREE POLE				FOUR POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3331	7¼	$4.50	30	3341	11	$6.20
3332	8¼	5.60	60	3342	18	7.70
3334	16	11.30	100	3344	27	15.50
3335	24½	19.60	200	3345	43	27.00

600 Volt DC—600 Volt AC

ONE POLE				TWO POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3450	3¼	$3.70	30	3456	8¼	$5.60
3451	4¼	4.30	60	3457	9¼	6.40
3452	8	8.00	100	3458	18	12.00
3403	16	13.00	200	3404	30	20.00

THREE POLE				FOUR POLE		
Cat. No.	Net Wt. Ea., Lb.	Price Each	AMPERES	Cat. No.	Net Wt. Ea., Lb.	Price Each
3462	13	$8.40	30	3468	17½	$11.50
3463	14	9.60	60	3469	18½	13.10
3464	28	18.00	100	3470	38	24.70
3405	43	30.00	200	3406	59	42.00

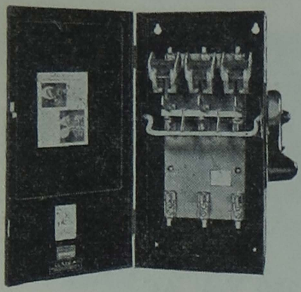
For Unmounted switches deduct 10%.

WESTINGHOUSE SAFETY SWITCHES

MOTOR CIRCUIT—INTERLOCKING DOORS

Single Throw—Quick-Make, Quick-Break

125-250, 250 and 600 Volts, D-C.
115-230, 230 and 575 Volts, A-C.



Type A Switch
No. AF-353—Open

For Type A the simplified quick-make and quick-break mechanism is entirely contained in the handle, leaving the cabinet free of parts that might break and cause a short-circuit or ground.

The diamond-pointed jaw and extended blade assure clean contact, and prevent burning and beading of parts that are in contact.

One-piece copper construction, fewer joints per pole, spring steel fuse-jaw reinforcements give minimum heat loss. No dead points—positive operation; impossible to show "off" with switch actually on.

The quick-make and break mechanism is so designed that in opening or closing, the blades are brought to the limit of travel by means of a stop within the blade. The switch will operate manually in case the quick-make, quick-break mechanism is inoperative.

The switch door for Type A is interlocking with the switch handle. The door can be opened only when the switch is in the off position and the switch cannot be closed with the door open. Where the interlocking mechanism is not desired it can be made inoperable by removing the small spring.

The switch may be locked off, provision being made for independent locking by three persons. The door may be padlocked shut so that access to the switch may be had only by authorized persons.

Arrangements for motor tests are provided.

Parts in switch that are subject to corrosion are cadmium plated or heavily japan enameled.

The entire interior mechanism of the switch is of an extremely simplified construction.

An abundance of concentric knockouts is provided.

Plenty of wiring space is available.

This switch has a durable black marine finish.

Conduit entering top side of switch does not interfere with operation of the handle.

These switches save maintenance costs. From 60 to 200 amperes, all copper parts are of one-piece construction, removable from the front, and are easily replaced. The 400 ampere sizes and above use copper parts of milled type construction, ground to a perfect fit. Both types of construction save power as heating is reduced.

The Arc Quencher

In the 575-600 volt switches, up to 200 amperes, each blade is equipped with an individual "De-ion" arc quencher.

In the arc quencher, the nickel-plated slotted steel plates are held in place by porcelain holders mounted over each jaw. These holders are easily removable from the front, if it is desired to remove them for wiring. The 400 and 600-ampere, 575-600 volt switches are supplied with multiple type "De-ion" arc quenchers.

WESTINGHOUSE SAFETY SWITCHES

MOTOR CIRCUIT—INTERLOCKING DOORS

Continued

Single Throw—Quick-Make, Quick-Break

125-250, 250 and 600 Volts, D-C.
120-208, 115-230, 230 and 575 Volts, A-C.

Type A switches have cover interlocked with mechanism so it cannot be opened when switch is "on." For use on motor and heavy-duty industrial circuits. Quick-make and quick-break.

Type C switches do not have cover interlocked; the door can be opened when switch is on. For motor and industrial circuits. Quick-make and quick-break.

Type D general purpose switches are primarily for main entrance work and are not suitable for motor circuits above 2 hp.—250 volts or under. Quick-break only.

Fusible—230 Volt A-C.—250 Volt D-C.

Switch Rating		Type A With Safety Interlock		Type C Without Interlock		Type D† General Purpose	
HP.* DC-AC	Amp.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
			2-Pole				
5–2	30	AF-221	$10.50	CF-221	$ 4.50	DF-221-R	$ 2.20
10–5	60	AF-222	17.00	CF-222	11.50	DF-222	6.20
15–10	100	AF-223	26.00	CF-223	20.00	DF-223	15.00
30–15	200	AF-224	45.00	CF-224	27.50	DF-224	25.00
50–30	400	AF-225	101.50	CF-225	80.00	DF-225	80.00
....	600	AF-226	146.50	CF-226	124.00	DF-226	124.00
....	800	AF-227	248.00	....	....	....	....
....	1200	AF-228	344.00	....	....	....	....
			3-Pole				
3	30	AF-321	13.50	CF-321	7.00	DF-321	4.10
7½	60	AF-322	22.50	CF-322	12.50	DF-322	7.90
15	100	AF-323	34.00	CF-323	25.00	DF-323	16.50
30	200	AF-324	50.50	CF-324	36.50	DF-324	31.50
50	400	AF-325	112.50	CF-325	92.50	DF-325	92.50
....	600	AF-326	175.00	CF-326	144.00	DF-326	144.00
....	800	AF-327	338.00	....	....	....	....
....	1200	AF-328	434.00	....	....	....	....
			4-Pole				
3	30	AF-421	20.50	CF-421	14.50	DF-421	7.90
10	60	AF-422	27.00	CF-422	17.00	DF-422	14.10
20	100	AF-423	45.00	CF-423	37.50	DF-423	30.00
30	200	AF-424	67.50	CF-424	60.00	DF-424	56.50
50	400	AF-425	146.50	CF-425	131.50	DF-425	131.50
....	600	AF-426	231.00	CF-426	207.00	DF-426	207.00

Non-Fusible—230 Volt A-C.—250 Volt D-C.

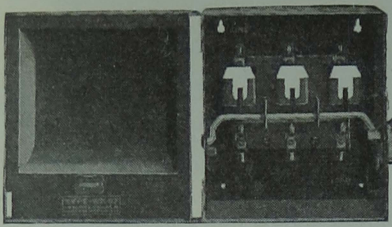
			2-Pole—250 Volts				
5–2	30	AU-221	$ 9.00	CU-221	$ 4.50	DU-221	$ 2.00
10–7½	60	AU-222	12.50	CU-222	10.00	DU-222	5.50
15–15	100	AU-223	25.00	CU-223	20.00	DU-223	14.00
30–25	200	AU-224	31.50	CU-224	26.00	DU-224	21.50
50–50	400	AU-225	67.50	CU-225	56.50	DU-225	56.50
....	600	AU-226	112.50	CU-226	95.00	DU-226	95.00
....	800	AU-227	220.00	....	....	....	....
....	1200	AU-228	299.00	....	....	....	....
			3-Pole—230 Volts‡				
5	30	AU-321	11.00	CU-321	7.00	DU-321	3.50
10	60	AU-352	20.50	CU-322	11.50	DU-322	7.50
20	100	AU-353	30.50	CU-323	21.50	DU-323	15.00
40	200	AU-354	43.50	CU-324	31.50	DU-324	29.00
50	400	AU-355	112.50	CU-325	71.50	DU-325	71.50
....	600	AU-356	180.50	CU-326	113.00	DU-326	113.00
			4-Pole—230 Volts‡				
5	30	AU-421	20.50	CU-421	12.50	DU-421	7.00
15	60	AU-452	27.00	CU-422	17.00	DU-422	12.50
25	100	AU-453	39.50	CU-423	34.00	DU-423	26.50
50	200	AU-454	59.00	CU-424	52.50	DU-424	45.00
50	400	AU-455	146.50	CU-425	94.00	DU-425	94.00
....	600	AU-456	220.00	CU-426	188.00	DU-426	188.00

*Type A and Type C only.

†Rated up to 2 hp. **only** for motor circuits.

‡Type A 3-pole and 4-pole, 60-600 amperes, use 575 volt switches as listed.

WESTINGHOUSE SAFETY SWITCHES
SINGLE THROW "DE-ION" TYPE
Fusible 575 Volt A-C.—600 Volt D-C.
Non-Fusible 230/575 Volt A-C—600 Volt D-C.



Non-Fusible Switch
With "De-ion" Arc Quencher

Contact life is lengthened with "De-ion" quenchers. Arcs are quenched instantly, no flash or flame—quick-make and quick-break.

Fusible—575 Volt A-C.—600 Volts D-C.

Switch Rating		Type A With Safety Interlock		Type C Without Interlock	
HP.	Amp.	Cat. No.	Price Each	Cat. No.	Price Each
		2-Pole—600 Volts			
7½	30	AF-261	$20.50	Use Type A Switches Listed at Left	
15	60	AF-262	21.50		
25	100	AF-263	34.00		
50	200	AF-264	53.00		
----	400	AF-265	124.00		
----	600	AF-266	197.00		
----	800	AF-267	304.00		
----	1200	AF-268	428.00		
		3-Pole—575 Volts			
7½	30	AF-351	25.00	CF-351	$13.50
20	60	AF-352	26.00	CF-352	17.00
30	100	AF-353	39.50	CF-353	35.00
50	200	AF-354	65.50	CF-354	52.50
----	400	AF-355	135.00	-----------	
----	600	AF-356	225.00	-----------	---------
----	800	AF-357	394.00	-----------	---------
----	1200	AF-358	518.00	-----------	---------
		4-Pole—575 Volts			
7½	30	AF-451	30.50	CF-451	22.50
20	60	AF-452	32.50	CF-452	25.00
30	100	AF-453	52.00	CF-453	50.00
50	200	AF-454	79.00	CF-454	71.50
----	400	AF-455	174.50	-----------	---------
----	600	AF-456	270.00	-----------	---------

Non-Fusible—230/575 Volt A-C.—600 Volt D-C.

			2-Pole—600 Volts			
7½		30	AU-261	$12.50	Use Type A Switches Listed at Left	
15		60	AU-262	17.00		
25		100	AU-263	26.00		
50		200	AU-264	35.00		
----		400	AU-265	101.50		
----		600	AU-266	146.50		
----		800	AU-267	220.00		
----		1200	AU-268	299.00		
Volts A-C. 230	575		**3-Pole—575 Volts**			
----	10	30	AU-351	$14.50	CU-351	$10.00
10	25	60	AU-352	20.50	CU-352	13.50
20	40	100	AU-353	30.50	CU-353	27.50
40	50	200	AU-354	43.00	CU-354	40.00
----	----	400	AU-355	112.50	-----------	---------
----	----	600	AU-356	180.50	-----------	---------
----	----	800	AU-357	293.00	-----------	---------
----	----	1200	AU-358	394.00	-----------	---------
			4-Pole—575 Volts			
----	10	30	AU-451	20.50	CU-451	13.50
15	25	60	AU-452	27.00	CU-452	22.50
25	40	100	AU-453	39.50	CU-453	39.00
50	50	200	AU-454	59.00	CU-454	57.50
----	----	400	AU-455	146.50	-----------	---------
----	----	600	AU-456	220.00	-----------	---------

WESTINGHOUSE SAFETY SWITCHES
FOR GROUNDED DISTRIBUTION SYSTEMS
Solid Neutral Fusible Switches
230, 115/230 Volts A-C.—125/250 Volts D-C.

AF-353

These switches meet every type of distribution system and conform to underwriter requirements. They have all the money-saving features of other Westinghouse switches, at no increase in cost.

With these switches, there is a great savings in heat loss, due to the construction with the smallest number of contact points. One-piece copper construction also saves money from power loss. There are from 2 to 7 less contact points per pole.

Solid Neutral—3-Pole, 2 Blades, 2 Fuses—With grounded Neutral used for entrance work. With insulated Neutral, for entrance work or as a circuit switch where it is not desirable to open the grounded conductor of a 3-conductor circuit.

Solid Neutral—4-Pole, 3 Blades, 3 Fuses—With grounded Neutral used for entrance work. With insulated Neutral, for entrance work or as a circuit switch where it is undesirable to open the grounded conductor of a 4-conductor circuit.

Solid Neutral—5-Pole, 4 Blades, 4 Fuses—Used for entrance work or as a circuit switch where it is undesirable to open the grounded conductor of a 5-conductor circuit.

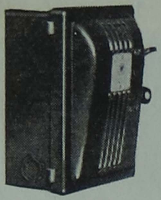
Switch Rating		Type A With Safety Interlock		Type C Without Interlock		Type D† General Purpose	
HP.* dc-ac	Amp.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
		3-Pole Solid Neutral 125/250 Volts D-C.—230 Volts A-C.					
3	30	AF-321-I	$12.00	CF-321-I	$ 6.00	....	....
....	30	....	....	CF-321-G	6.00	DF-321-G	$ 3.40
7½	60	AF-322-I	19.00	CF-322-I	11.50	DF-322-I	6.20
....	60	....	....	CF-322-G	11.50	DF-322-G	6.20
15	100	AF-323-I	30.50	CF-323-I	20.00	DF-323-I	15.50
....	100	....	....	CF-323-G	20.00	DF-323-G	15.50
30	200	AF-324-I	49.50	CF-324-I	31.50	DF-324-I	27.50
50	400	AF-325-I	112.50	CF-325-I	87.50	....	....
....	600	AF-326-I	163.50	CF-326-I	138.00	....	....
....	800	AF-327-I	270.50	....	....	....	....
....	1200	AF-328-I	383.00	....	....	....	....
		4-Pole Solid Neutral 230 Volts A-C.					
....	30	....	....	CF-421-G	10.00	DF-421-G	7.30
....	60	AF-422-G	26.00	CF-422-G	14.50	DF-422-G	11.80
....	100	AF-423-G	40.50	CF-423-G	29.00	DF-423-G	25.00
....	200	AF-424-I	62.00	CF-424-I	44.00	DF-424-I	41.50
....	400	AF-425-I	129.50	CF-425-I	112.50	....	....
....	600	AF-426-I	200.50	CF-426-I	197.50	....	....
....	800	AF-427-I	383.00	....	....	....	....
....	1200	AF-428-I	476.00	....	....	....	....
		5-Pole Solid Neutral 115/230 Volts A-C.					
....	30	....	....	CF-521-G	16.00	DF-521-G	10.70
....	60	AF-522-G	30.50	CF-522-G	25.00	DF-522-G	18.60
....	100	AF-523-G	51.00	CF-523-G	50.00	DF-523-G	39.00
....	200	AF-524-I	79.00	CF-524-I	70.00	DF-524-I	66.50
....	400	AF-525-I	168.00	CF-525-I	163.50	....	....
....	600	AF-526-I	276.00	CF-526-I	253.50	....	....

*Type A and Type C only.

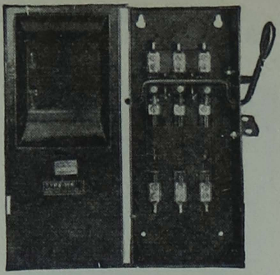
†Rated up to 2 hp. **only** for motor circuits.

WESTINGHOUSE SAFETY SWITCHES

FUSIBLE—GENERAL PURPOSE—TYPE D



PF-211-K



DF-323-K

Pf-211-K is a plug fuse switch for light duty entrance work and lighting circuits. DF-323-K is a cartridge fuse switch for entrance work and light duty industrial circuits.

For Plug Fuses—125/250 Volts A-C. or D-C.

Cat. No.	Amp.	Poles	Blades	Fuses	Price Each
*PF-211-K	30	2	2	2	$1.70
*PF-211-IK	30	2	1	1	1.60
†PF-311-R	30	3	3	3	3.40
†PF-311-SR	30	3	3	2	3.40
*PF-311-IK	30	3	2	2	2.00

For Cartridge Fuses—115/230 Volts A-C.—125/250 Volts D-C. and 230 Volts A-C., 250 Volts D-C.

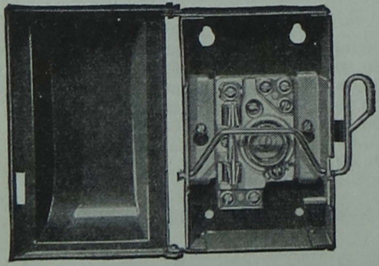
Cat. No.	Amp.	Poles	Blades	Fuses	Price Each
DF-221-R	30	2	2	2	$2.20
DF-321-IR	30	3	2	2	3.40
DF-222-K	60	2	2	2	6.20
DF-322-K	60	3	3	3	7.90
DF-322-SK	60	3	3	2	7.90
DF-322-IK	60	3	2	2	6.20
DF-223-K	100	2	2	2	15.00
DF-323-K	100	3	3	3	16.50
DF-323-SK	100	3	3	2	16.50
DF-323-IK	100	3	2	2	15.50
‡DF-224-K	200	2	2	2	25.00
‡DF-324-K	200	3	3	3	31.50
‡DF-324-SK	200	3	3	2	31.50
‡DF-324-IK	200	3	2	2	27.50

Front Operating Fusible—115/230 Volts A-C. 125/250 Volts D-C.

Cat. No.	Amp.	Poles	Blades	Fuses	Price Each
MF-211-I	30	2	1	1-plug	$1.60
MF-211-K	30	2	2	2-plug	1.70
¶MF-211-K	30	2	2	2-plug	2.50
MF-311-IK	30	3	2	2-plug	2.00
§NF-221-K	30	2	2	2-cart.	2.20

*Have knockouts for standardized meters.
†Have standardized meter trims.
‡Type C construction.
¶Has fibre shield over wiring space.
§Rated 230 volts.

MIDGET SWITCHES



GF-211-I

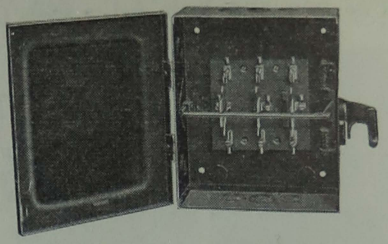
Designed for refrigeration machines, stokers and other major household appliances. Has terminal strip for thermostat leads. Removable base. For 125 volt service. Fusible, solid neutral, single throw.

125 Volts A-C. or D-C.

Cat. No.	Amp.	Poles	Switch Blades	Fuses	Each
GF-211-I	30	2SN	1	1-plug	$1.60
HF-211-I	30	2SN	1	1-NEC	2.20

WESTINGHOUSE SAFETY SWITCHES

DOUBLE-THROW—POSITIVE-MAKE AND QUICK-BREAK



No. XU-322 Non-Fusible—Open

Generally used as a transfer switch where a load is served from two sources, or where it is desired to open one circuit and close another, and when the circuits do not have to be fused. Fusible switches cover the same applications where the circuits must be fused.

Handle is arranged for padlocking in "Off" position. Slate base, milled copper construction. Type A material is used, but does not have the cover interlock, and is not quick-make. Copper parts are not removable from the front.

Fusible Switches

			Equipped With Arc Barriers	
	230 Volts A-C. 250 Volts D-C.		575 Volts A-C. 600 Volts D-C.	
Switch Rating	Cat. No.	Price Each	Cat. No.	Price Each
		2-Pole		
30	XF-221	$21.50	XF-261	$48.50
60	XF-222	27.00	XF-262	48.50
100	XF-223	65.50	XF-263	87.00
200	XF-224	94.50	XF-264	110.50
400	XF-225	192.00	XF-265	207.50
600	XF-226	239.00	....	....
		3-Pole		
30	XF-321	26.00	XF-351	49.50
60	XF-322	34.00	XF-352	49.50
100	XF-323	79.00	XF-353	92.50
200	XF-324	125.00	XF-354	145.50
400	XF-325	264.00	XF-355	264.50
600	XF-326	320.00	....	....
		4-Pole		
30	XF-421	36.00	XF-451	76.50
60	XF-422	58.50	XF-452	76.50
100	XF-423	92.50	XF-453	137.50
200	XF-424	158.00	XF-454	185.00
400	XF-425	293.00	XF-455	318.00
600	XF-426	378.00	....	....

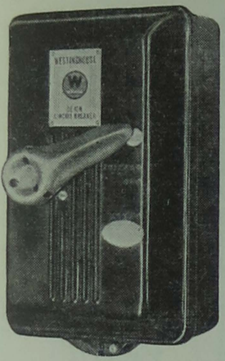
Non-Fusible Switches

Switch Rating	Cat. No.	Price Each	Cat. No.	Price Each
		2-Pole		
30	XU-221	$14.50	XU-261	$21.50
60	XU-222	19.00	XU-262	21.50
100	XU-223	34.00	XU-263	37.00
200	XU-224	47.50	XU-264	53.00
400	XU-225	135.00	XU-265	152.00
600	XU-226	191.50	XU-266	214.00
		3-Pole		
30	XU-321	17.00	XU-351	25.00
60	XU-322	22.50	XU-352	25.00
100	XU-323	41.50	XU-353	45.00
200	XU-324	69.00	XU-354	73.00
400	XU-325	181.00	XU-355	191.50
600	XU-326	252.00	XU-356	277.00
		4-Pole		
30	XU-421	25.00	XU-451	39.50
60	XU-422	36.00	XU-452	39.50
100	XU-423	74.50	XU-453	84.50
200	XU-424	108.00	XU-454	118.00
400	XU-425	243.50	XU-455	265.00
600	XU-426	316.00	XU-456	344.00

WESTINGHOUSE NOFUZE "DE-ION" CIRCUIT BREAKERS

"DE-ION" CIRCUIT BREAKERS—TYPE AB-I

For A-C. and D-C. Lighting and Power Circuits



100-Ampere
Dust-Resisting

Westinghouse

100-Ampere
Grounded Neutral

Developed to give individually enclosed circuit breaker protection for main services, light and power wiring systems. This device, requiring no element to renew after circuit interruption, provides a completely enclosed, non-tamperable unit to replace fuses, fused switches and other similar circuit protectors.

These enclosed breakers require approximately 40 per cent less mounting space than the conventional fused safety switch. The AB-I breaker provides perfect safety to the operator, as no live parts are exposed.

The frame ratings are from 15 to 50 amperes, 50 to 100 amperes, 70 to 225 amperes, 225 to 600 amperes either 250 volts a.c., 125/250 volts d.c. or 600 volts a.c., 250 volts d.c. The maximum rating of each frame size indicates the maximum continuous current carrying capacity of that frame. On all frames except the 15 to 50-ampere size, the thermal and magnetic trip is built as a separate unit so that the breaker rating can be changed by changing the trip unit. Within the capacity limitations of the various frames, trip units are available in ratings corresponding to standard wire and cable sizes.

AB-I circuit breakers can be furnished for practically all classes of service. Available enclosures are sheet steel, weatherproof, explosion-resisting for Class I Group D locations and Class II Group G locations.

All enclosures except grounded neutral enclosures have an external cast handle, self-indicating, that engages the molded breaker handle. This facilitates ease of operation. Breakers can all be operated from outside the cabinet "on"—"off" or "reset".

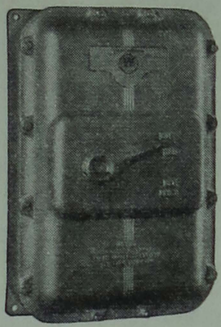
Sheet Steel Enclosures are furnished with combination knockouts in sides, ends and back of cabinet. The finish is a baked black japan. They can also be furnished cadmium-plated.

For grounded neutral installations, enclosures are equipped with indicating pilot lights. The covers are of the screw-on type. These cabinets differ in that the breaker is operated by direct action. The breaker handle protrudes through an opening in the cover and is protected by a steel cover. To operate the breaker the handle cover is lifted. A handle extension is supplied with the 600-ampere enclosure for attachment to the Moldarta breaker handle to provide ease of operation.

WESTINGHOUSE NOFUZE "DE-ION" CIRCUIT BREAKERS

"DE-ION" CIRCUIT BREAKERS—TYPE AB-I

For A-C. and D-C. Lighting and Power Circuits



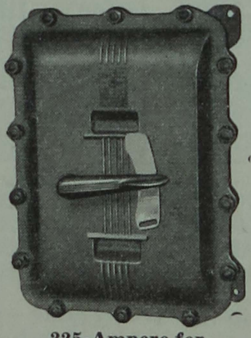
225-Ampere
Water and Dust-Tight

600-Ampere
Cast-Iron
Water and Dust-Tight

Water and Dust-Tight Enclosures can be furnished in either cast iron or cast aluminum. (Both have aluminized finish). They are furnished with heavy gasketed covers that make them water and dust-tight. The 50-ampere, 100-ampere and 225-ampere frame sizes have four tapped openings for the maximum size conduit suitable for the particular frame. (Reducing bushings must be used with smaller conduit). One of the openings is in the top and three in the bottom, however, the design is such that the box is reversible so the three openings can be located at the top and the other at the bottom if conduit connections are desired in this manner. Two pipe plugs are furnished for stopping holes not used.

The sides are equipped with two heavy sections so customer can drill and tap where side connections are desired.

The 600-ampere weatherproof enclosure is designed similar to the explosion-proof enclosure, except a heavy gasket is placed between box and cover. This enclosure is furnished with blank reinforced ends unless otherwise specified.



225-Ampere for
Hazardous Locations

Explosion-resisting Enclosures listed are made of semi-steel. Finish is aluminized. Types are available for either Class I Group D locations or Class II Group G locations. For specific differences and sizes, write nearest office. These housings have a closely ground fit between box and cover. The cover cannot be removed from the box unless the handle is in the "off" position. Enclosures are furnished with blank reinforced ends unless otherwise specified. No charge for drilling or tapping. Mounting lugs furnished on ends unless otherwise specified.

Submersion Proof Enclosures can be furnished and are similar in construction to the explosion proof enclosures described above, (prices on request).

Pilot lights are furnished as standard equipment with grounded neutral sheet steel enclosures. The dust resisting sheet steel enclosure is designed for easy adoption of pilot lights. Pilot lights can be supplied as extra equipment with explosion proof enclosures.

Shipment — Breakers are shipped mounted in their enclosures as a single unit.

WESTINGHOUSE NOFUZE "DE-ION" CIRCUIT BREAKERS

"DE-ION" CIRCUIT BREAKERS — TYPE AB-I

OVERLOAD AND SHORT CIRCUIT PROTECTION

50 Ampere Frame — Non-Interchangeable Trip

Ampere Rating	DUST RESISTING		WATER AND DUST TIGHT				FOR HAZARDOUS LOCATIONS			
	Sheet Steel		Cast Aluminum		Cast Iron		Class I Group D		Class II Group G	
	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
Single-Pole, 250 Volt A-C. — 125/250 Volt D-C.										
15	DA-1215	$ 11.00			IA-1215	$ 28.00	XA-1215	$ 34.00		
20	DA-1220	11.00			IA-1220	28.00	XA-1220	34.00		
25	DA-1225	11.00			IA-1225	28.00	XA-1225	34.00		
35	DA-1235	12.00			IA-1235	29.00	XA-1235	35.00		
50	DA-1250	12.00			IA-1250	29.00	XA-1250	35.00		
2-Pole, 250 Volt A-C. — 125/250 Volt D-C.										
15	DA-2215	17.00			IA-2215	34.00	XA-2215	40.00		
20	DA-2220	17.00			IA-2220	34.00	XA-2220	40.00		
25	DA-2225	17.00			IA-2225	34.00	XA-2225	40.00		
35	DA-2235	19.00			IA-2235	36.00	XA-2235	42.00		
50	DA-2250	19.00			IA-2250	36.00	XA-2250	42.00		
3-Pole, 250 Volt A-C. — 125/250 Volt D-C.										
15	DA-3215	23.00			IA-3215	48.00	XA-3215	60.00	YA-3215	$ 53.00
20	DA-3220	23.00			IA-3220	48.00	XA-3220	60.00	YA-3220	53.00
25	DA-3225	23.00			IA-3225	48.00	XA-3225	60.00	YA-3225	53.00
35	DA-3235	27.00			IA-3235	52.00	XA-3235	64.00	YA-3235	56.00
50	DA-3250	27.00			IA-3250	52.00	XA-3250	64.00	YA-3250	56.00
2-Pole, 600 Volt A-C. — 250 Volt D-C.										
15	DA-2615	34.00	AA-2615	$ 68.00	IA-2615	65.00	XA-2615	85.00	YA-2615	70.00
20	DA-2620	34.00	AA-2620	68.00	IA-2620	65.00	XA-2620	85.00	YA-2620	70.00
25	DA-2625	34.00	AA-2625	68.00	IA-2625	65.00	XA-2625	85.00	YA-2625	70.00
35	DA-2635	36.00	AA-2635	71.00	IA-2635	67.00	XA-2635	87.00	YA-2635	73.00
50	DA-2650	36.00	AA-2650	71.00	IA-2650	67.00	XA-2650	87.00	YA-2650	73.00
3-Pole, 600 Volt A-C.										
15	DA-3615	41.00	AA-3615	76.00	IA-3615	72.00	XA-3615	92.00	YA-3615	77.00
20	DA-3620	41.00	AA-3620	76.00	IA-3620	72.00	XA-3620	92.00	YA-3620	77.00
25	DA-3625	41.00	AA-3625	76.00	IA-3625	72.00	XA-3625	92.00	YA-3625	77.00
35	DA-3635	45.00	AA-3635	79.00	IA-3635	76.00	XA-3635	96.00	YA-3635	81.00
50	DA-3650	45.00	AA-3650	79.00	IA-3650	76.00	XA-3650	96.00	YA-3650	81.00

100 Ampere Frame — Interchangeable Trip Units

Ampere Rating	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
2-Pole, 250 Volt A-C. — 125/250 Volt D-C.										
50	DB-2250	$ 46.00	AB-2250	$128.00	IB-2250	$120.00	XB-2250	$140.00	YB-2250	$132.00
70	DB-2270	46.00	AB-2270	128.00	IB-2270	120.00	XB-2270	140.00	YB-2270	132.00
90	DB-2290	46.00	AB-2290	128.00	IB-2290	120.00	XB-2290	140.00	YB-2290	132.00
100	DB-2211	46.00	AB-2211	128.00	IB-2211	120.00	XB-2211	140.00	YB-2211	132.00
3-Pole, 250 Volt A-C. — 125/250 Volt D-C.										
50	DB-3250	58.00	AB-3250	140.00	IB-3250	132.00	XB-3250	152.00	YB-3250	144.00
70	DB-3270	58.00	AB-3270	140.00	IB-3270	132.00	XB-3270	152.00	YB-3270	144.00
90	DB-3290	58.00	AB-3290	140.00	IB-3290	132.00	XB-3290	152.00	YB-3290	144.00
100	DB-3211	58.00	AB-3211	140.00	IB-3211	132.00	XB-3211	152.00	YB-3211	144.00
2-Pole, 600 Volt A-C. — 250 Volt D-C.										
50	DB-2650	55.00	AB-2650	133.00	IB-2650	129.00	XB-2650	149.00	YB-2650	141.00
70	DB-2670	55.00	AB-2670	133.00	IB-2670	129.00	XB-2670	149.00	YB-2670	141.00
90	DB-2690	55.00	AB-2690	133.00	IB-2690	129.00	XB-2690	149.00	YB-2690	141.00
100	DB-2611	55.00	AB-2611	133.00	IB-2611	129.00	XB-2611	149.00	YB-2611	141.00
3-Pole, 600 Volt A-C.										
50	DB-3650	71.00	AB-3650	153.00	IB-3650	145.00	XB-3650	165.00	YB-3650	157.00
70	DB-3670	71.00	AB-3670	153.00	IB-3670	145.00	XB-3670	165.00	YB-3670	157.00
90	DB-3690	71.00	AB-3690	153.00	IB-3690	145.00	XB-3690	165.00	YB-3690	157.00
100	DB-3611	71.00	AB-3611	153.00	IB-3611	145.00	XB-3611	165.00	YB-3611	157.00

225 Ampere Frame — Interchangeable Rating Units

Ampere Rating	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
2-Pole, 250 Volt A-C. — 125/250 Volt D-C.										
70	DC-2270	$121.00	AC-2270	$219.00	IC-2270	$209.00	XC-2270	$249.00	YC-2270	$224.00
90	DC-2290	121.00	AC-2290	219.00	IC-2290	209.00	XC-2290	249.00	YC-2290	224.00
100	DC-2211	121.00	AC-2211	219.00	IC-2211	209.00	XC-2211	249.00	YC-2211	224.00
125	DC-2212	121.00	AC-2212	219.00	IC-2212	209.00	XC-2212	249.00	YC-2212	224.00
150	DC-2216	121.00	AC-2216	219.00	IC-2216	209.00	XC-2216	249.00	YC-2216	224.00
175	DC-2217	121.00	AC-2217	219.00	IC-2217	209.00	XC-2217	249.00	YC-2217	224.00
200	DC-2221	121.00	AC-2221	219.00	IC-2221	209.00	XC-2221	249.00	YC-2221	224.00
225	DC-2222	121.00	AC-2222	219.00	IC-2222	209.00	XC-2222	249.00	YC-2222	224.00
3-Pole, 250 Volt A-C. — 125/250 Volt D-C.										
70	DC-3270	145.00	AC-3270	243.00	IC-3270	233.00	XC-3270	273.00	YC-3270	248.00
90	DC-3290	145.00	AC-3290	243.00	IC-3290	233.00	XC-3290	273.00	YC-3290	248.00
100	DC-3211	145.00	AC-3211	243.00	IC-3211	233.00	XC-3211	273.00	YC-3211	248.00
125	DC-3212	145.00	AC-3212	243.00	IC-3212	233.00	XC-3212	273.00	YC-3212	248.00
150	DC-3216	145.00	AC-3216	243.00	IC-3216	233.00	XC-3216	273.00	YC-3216	248.00
170	DC-3217	145.00	AC-3217	243.00	IC-3217	233.00	XC-3217	273.00	YC-3217	248.00
200	DC-3221	145.00	AC-3221	243.00	IC-3221	233.00	XC-3221	273.00	YC-3221	248.00
225	DC-3222	145.00	AC-3222	243.00	IC-3222	233.00	XC-3222	273.00	YC-3222	248.00

WESTINGHOUSE NOFUZE "DE-ION" CIRCUIT BREAKERS

"DE-ION" CIRCUIT BREAKERS — TYPE AB-I — Continued

OVERLOAD AND SHORT CIRCUIT PROTECTION

225 Ampere Frame — Interchangeable Rating Units (Concluded)

	DUST RESISTING		WATER AND DUST TIGHT				FOR HAZARDOUS LOCATIONS			
	Sheet Steel		Cast Aluminum		Cast Iron		Class I Group D		Class II Group G	
Ampere Rating	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
	2-pole, 600 Volt A-C. — 250 Volt D-C.									
70	DC-2670	$142.00	AC-2670	$240.00	IC-2670	$230.00	XC-2670	$270.00	YC-2670	$245.00
90	DC-2690	142.00	AC-2690	240.00	IC-2690	230.00	XC-2690	270.00	YC-2690	245.00
100	DC-2611	142.00	AC-2611	240.00	IC-2611	230.00	XC-2611	270.00	YC-2611	245.00
125	DC-2612	142.00	AC-2612	240.00	IC-2612	230.00	XC-2612	270.00	YC-2612	245.00
150	DC-2616	142.00	AC-2616	240.00	IC-2616	230.00	XC-2616	270.00	YC-2616	245.00
175	DC-2617	142.00	AC-2617	240.00	IC-2617	230.00	XC-2617	270.00	YC-2617	245.00
200	DC-2621	142.00	AC-2621	240.00	IC-2621	230.00	XC-2621	270.00	YC-2621	245.00
225	DC-2622	142.00	AC-2622	240.00	IC-2622	230.00	XC-2622	270.00	YC-2622	245.00
	3-Pole, 600 Volt A-C.									
70	DC-3670	174.00	AC-3670	272.00	IC-3670	262.00	XC-3670	302.00	YC-3670	277.00
90	DC-3690	174.00	AC-3690	272.00	IC-3690	262.00	XC-3690	302.00	YC-3690	277.00
100	DC-3611	174.00	AC-3611	272.00	IC-3611	262.00	XC-3611	302.00	YC-3611	277.00
125	DC-3612	174.00	AC-3612	272.00	IC-3612	262.00	XC-3612	302.00	YC-3612	277.00
150	DC-3616	174.00	AC-3616	272.00	IC-3616	262.00	XC-3616	302.00	YC-3616	277.00
175	DC-3617	174.00	AC-3617	272.00	IC-3617	262.00	XC-3617	302.00	YC-3617	277.00
200	DC-3621	174.00	AC-3621	272.00	IC-3621	262.00	XC-3621	302.00	YC-3621	277.00
225	DC-3622	174.00	AC-3622	272.00	IC-3622	262.00	XC-3622	302.00	YC-3622	277.00

600 Ampere Frame — Interchangeable Trip Units

Ampere Rating	Dust Resisting Sheet Steel Cat. No.	Price Each	Cast Aluminum Cat. No.	Price Each	Cast Iron Cat. No.	Price Each	Class I Group D Cat. No.	Price Each	Class II Group G Cat. No.	Price Each
	2-Pole, 250 Volt A-C. — 125/250 Volt D-C.									
225	DD-2222	$305.00	AD-2222	$544.00	ID-2222	$520.00	XD-2222	$580.00	....	....
250	DD-2226	305.00	AD-2226	544.00	ID-2226	520.00	XD-2226	580.00	....	....
275	DD-2227	305.00	AD-2227	544.00	ID-2227	520.00	XD-2227	580.00	....	....
300	DD-2230	305.00	AD-2230	544.00	ID-2230	520.00	XD-2230	580.00	....	....
325	DD-2232	305.00	AD-2232	544.00	ID-2232	520.00	XD-2232	580.00	....	....
350	DD-2236	305.00	AD-2236	544.00	ID-2236	520.00	XD-2236	580.00	....	....
400	DD-2240	305.00	AD-2240	544.00	ID-2240	520.00	XD-2240	580.00	....	....
450	DD-2245	348.00	AD-2245	587.00	ID-2245	563.00	XD-2245	623.00	....	....
500	DD-2251	348.00	AD-2251	587.00	ID-2251	563.00	XD-2251	623.00	....	....
550	DD-2255	348.00	AD-2255	587.00	ID-2255	563.00	XD-2255	623.00	....	....
600	DD-2260	348.00	AD-2260	587.00	ID-2260	563.00	XD-2260	623.00	....	....
	3-Pole, 250 Volt A-C. — 125/250 Volt D-C.									
225	DD-3222	380.00	AD-3222	619.00	ID-3222	595.00	XD-3222	655.00	....	....
250	DD-3226	380.00	AD-3226	619.00	ID-3226	595.00	XD-3226	655.00	....	....
275	DD-3227	380.00	AD-3227	619.00	ID-3227	595.00	XD-3227	655.00	....	....
300	DD-3230	380.00	AD-3230	619.00	ID-3230	595.00	XD-3230	655.00	....	....
325	DD-3232	380.00	AD-3232	619.00	ID-3232	595.00	XD-3232	655.00	....	....
350	DD-3236	380.00	AD-3236	619.00	ID-3236	595.00	XD-3236	655.00	....	....
400	DD-3240	380.00	AD-3240	619.00	ID-3240	595.00	XD-3240	655.00	....	....
450	DD-3245	437.00	AD-3245	676.00	ID-3245	652.00	XD-3245	712.00	....	....
500	DD-3251	437.00	AD-3251	676.00	ID-3251	652.00	XD-3251	712.00	....	....
550	DD-3255	437.00	AD-3255	676.00	ID-3255	652.00	XD-3255	712.00	....	....
600	DD-3260	437.00	AD-3260	676.00	ID-3260	652.00	XD-3260	712.00	....	....
	2-Pole, 600 Volt A-C. — 250 Volt D-C.									
225	DD-2622	325.00	AD-2622	564.00	ID-2622	540.00	XD-2622	600.00	....	....
250	DD-2626	325.00	AD-2626	564.00	ID-2626	540.00	XD-2626	600.00	....	....
275	DD-2627	325.00	AD-2627	564.00	ID-2627	540.00	XD-2627	600.00	....	....
300	DD-2630	325.00	AD-2630	564.00	ID-2630	540.00	XD-2630	600.00	....	....
325	DD-2632	325.00	AD-2632	564.00	ID-2632	540.00	XD-2632	600.00	....	....
350	DD-2636	325.00	AD-2636	564.00	ID-2636	540.00	XD-2636	600.00	....	....
400	DD-2640	325.00	AD-2640	564.00	ID-2640	540.00	XD-2640	600.00	....	....
450	DD-2645	368.00	AD-2645	607.00	ID-2645	583.00	XD-2645	643.00	....	....
500	DD-2651	368.00	AD-2651	607.00	ID-2651	583.00	XD-2651	643.00	....	....
550	DD-2655	368.00	AD-2655	607.00	ID-2655	583.00	XD-2655	643.00	....	....
600	DD-2660	368.00	AD-2660	607.00	ID-2660	583.00	XD-2660	643.00	....	....
	3-Pole, 600 Volt A-C.									
225	DD-3622	409.00	AD-3622	648.00	ID-3622	624.00	XD-3622	684.00	....	....
250	DD-3626	409.00	AD-3626	648.00	ID-3626	624.00	XD-3626	684.00	....	....
275	DD-3627	409.00	AD-3627	648.00	ID-3627	624.00	XD-3627	684.00	....	....
300	DD-3630	409.00	AD-3630	648.00	ID-3630	624.00	XD-3630	684.00	....	....
325	DD-3632	409.00	AD-3632	648.00	ID-3632	624.00	XD-3632	684.00	....	....
350	DD-3636	409.00	AD-3636	648.00	ID-3636	624.00	XD-3636	684.00	....	....
400	DD-3640	409.00	AD-3640	648.00	ID-3640	624.00	XD-3640	684.00	....	....
450	DD-3645	465.00	AD-3645	704.00	ID-3645	680.00	XD-3645	740.00	....	....
500	DD-3651	465.00	AD-3651	704.00	ID-3651	680.00	XD-3651	740.00	....	....
550	DD-3655	465.00	AD-3655	704.00	ID-3655	680.00	XD-3655	740.00	....	....
600	DD-3660	465.00	AD-3660	704.00	ID-3660	680.00	XD-3660	740.00	....	....

WESTINGHOUSE NOFUZE CIRCUIT BREAKERS

FOR GROUNDED NEUTRAL SYSTEMS

250-Volt A-C.—125/250-Volt A-C. D-C.

SURFACE MOUNTED Amp. Ratings	Cat. No.	Price Each	FLUSH MOUNTED Amp. Ratings	Cat. No.	Price Each
50-Amp. Frame—3-Pole Solid Neutral†					
15	SA-3215-G	$20.00	15	SA-3215-GF	$20.00
20	SA-3220-G	20.00	20	SA-3220-GF	20.00
25	SA-3225-G	20.00	25	SA-3225-GF	20.00
35	SA-3235-G	22.00	35	SA-3235-GF	22.00
50	SA-3250-G	22.00	50	SA-3250-GF	22.00
100-Amp. Frame—3-Pole Solid Neutral†					
50	SB-3250-G	51.00	50	SB-3250-GF	51.00
70	SB-3270-G	51.00	70	SB-3270-GF	51.00
90	SB-3290-G	51.00	90	SB-3290-GF	51.00
100	SB-3211-G	51.00	100	SB-3211-GF	51.00
225-Amp. Frame—3-Pole Solid Neutral†					
70	SC-3270-G	128.00	70	SC-3270-GF	128.00
90	SC-3290-G	128.00	90	SC-3290-GF	128.00
100	SC-3211-G	128.00	100	SC-3211-GF	128.00
125	SC-3212-G	128.00	125	SC-3212-GF	128.00
150	SC-3216-G	128.00	150	SC-3216-GF	128.00
175	SC-3217-G	128.00	175	SC-3217-GF	128.00
200	SC-3221-G	128.00	200	SC-3221-GF	128.00
225	SC-3222-G	128.00	225	SC-3222-GF	128.00
600-Amp. Frame—3-Pole Solid Neutral†					
225	SD-3222-G	314.00	ADD FOR FLUSH MOUNTING 600-Amp. AB-1 Breakers $30 to list price shown at left		
250	SD-3226-G	314.00			
275	SD-3227-G	314.00			
300	SD-3230-G	314.00			
325	SD-3232-G	314.00			
350	SD-3236-G	314.00			
400	SD-3240-G	314.00			
450	SD-3245-G	357.00			
500	SD-3251-G	357.00			
550	SD-3255-G	357.00			
600	SD-3260-G	357.00			
50-Amp. Frame—4-Pole Solid Neutral‡					
15	SA-4215-G	26.00	15	SA-4215-GF	26.00
20	SA-4220-G	26.00	20	SA-4220-GF	26.00
25	SA-4225-G	26.00	25	SA-4225-GF	26.00
35	SA-4235-G	30.00	35	SA-4235-GF	30.00
50	SA-4250-G	30.00	50	SA-4250-GF	30.00
100-Amp. Frame—4-Pole Solid Neutral‡					
50	SB-4250-G	63.00	50	SB-4250-GF	63.00
70	SB-4270-G	63.00	70	SB-4270-GF	63.00
90	SB-4290-G	63.00	90	SB-4290-GF	63.00
100	SB-4211-G	63.00	100	SB-4211-GF	63.00
225-Amp. Frame—4-Pole Solid Neutral‡					
70	SC-4270-G	152.00	70	SC-4270-GR	152.00
90	SC-4290-G	152.00	90	SC-4290-GF	152.00
100	SC-4211-G	152.00	100	SC-4211-GF	152.00
125	SC-4212-G	152.00	125	SC-4212-GF	152.00
150	SC-4216-G	152.00	150	SC-4216-GF	152.00
175	SC-4217-G	152.00	175	SC-4217-GF	152.00
200	SC-4221-G	152.00	200	SC-4221-GF	152.00
225	SC-4222-G	152.00	225	SC-4222-GF	152.00
600-Amp. Frame—4-Pole Solid Neutral‡					
225	SD-4222-G	389.00	ADD FOR FLUSH MOUNTING 600-Amp. AB-1 Breakers $30 to list price shown at left		
250	SD-4226-G	389.00			
275	SD-4227-G	389.00			
300	SD-4230-G	389.00			
325	SD-4232-G	389.00			
350	SD-4236-G	389.00			
400	SD-4240-G	389.00			
450	SD-4245-G	446.00			
500	SD-4251-G	446.00			
550	SD-4255-G	446.00			
600	SD-4260-G	446.00			

†Use 3-pole Grounded Neutral.

‡Use 4-pole Grounded Neutral.

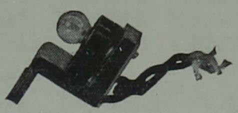
WESTINGHOUSE NOFUZE "DE-ION" CIRCUIT BREAKERS

PILOT LIGHT ACCESSORIES

For Use with Sheet-Steel Enclosures

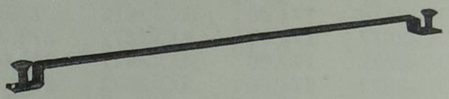
Dust resisting enclosures listed in the preceding tables are designed so that they can be equipped with pilot light indicator. When ordering, specify: 1—Catalog Number of pilot light, 2—Catalog Number of mounting strap, and 3—Catalog Number of Bull's Eye.

Pilot Light—Bulb Included



Volts	Cat. No.	Price Each
110	782394	$3.00
250	781831	3.00
460	781984	3.00
600	782395	3.00

Mounting Strap



Frame Size	Cat. No.	Price Each
50	835564	$0.15
100	835565	.20
225	835566	.30
600	835597	.40

Bull's-Eye—Fits All Sheet-Steel Enclosures

Cat. No.	Price Each	Neon Bulb Cat. No.	Neon Bulb Price Each
781832	$0.60	683997	$0.40

Special Finishes for Sheet-Steel Enclosures

Frame Size	Cadmium Plating or Aluminum	Hot Dip Galvanizing or Other Special Weather-proofing
50-ampere frame	$2.00	$6.00
100-ampere frame	4.00	12.50
225-ampere frame	5.00	19.00
600-ampere frame	10.00	44.00

For galvanizing cast enclosures, write for information.

Add for Solderless Lugs

Frame Size	Price per Lug
50-ampere frame	$0.50
100-ampere frame	.90
225-ampere frame	1.75
600-ampere frame	6.00

For special drilling and tapping of cast enclosures:

Conduit Size ¾-inch and 1-inch, **$2.00** per hole.
Conduit Size 1¼-inches and above, **$5.00** per hole.

Add for Neutrals

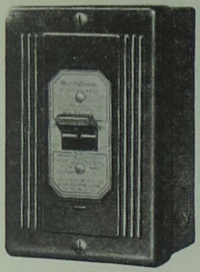
Frame Size	Price Each Grounded	Price Each Insulated
50-ampere frame	$3.00	$5.00
100-ampere frame	5.00	7.00
225-ampere frame	7.00	11.00
600-ampere frame	9.00	21.00

General Ordering Information

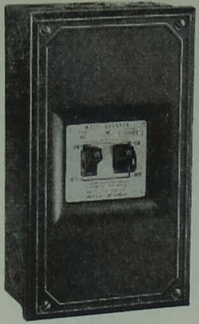
When ordering, specify: 1—Catalog Number, 2—Amperes, 3—Voltage and 4—Frame Size.

WESTINGHOUSE NOFUZE MULTI-BREAKERS

FUSELESS PROTECTION FOR HOMES AND SMALL COMMERCIAL BUILDINGS



Type M0
Cat. No. 131611



Type M1
Cat. No. 16611

Type M1 (50-amp. frame) separate trip circuit breaker has 1 or 2 individual poles which may be tied together to form a 2-pole breaker. Each pole is entirely independent, electrically and mechanically. Type MO (25-amp. frame) is similar.

Important Ordering Information

Mounting—Be sure to specify type of mounting: F (flush), S (surface), or R (raintight).

Finishes—All indoor boxes and surface fronts, aluminum finish. Flush fronts, grey enamel. Raintight enclosures, galvaneal steel, aluminum finish (surface mounting only).

One Carton Packaging—Customary for all Type M Multi-Breakers not exceeding 2 poles, and for all Raintight Multi-Breakers.

Two Carton Packaging—Standard for all Multi-Breakers using No. 3 and No. 5 boxes. The box is packed in one carton, and the interior and front in the other carton. This arrangement protects breakers and front until ready to wire.

For Combinations of Ampere Ratings Not Listed—Use price of catalog number of similar pole arrangement. Any individual single polarity block in Type MB devices is limited to a maximum of 135 amperes as the sum of the individual pole ratings, with not more than two poles which are 35 ampere or larger.

Raintight Enclosures—For devices not over 6 circuits using Nos. 3, 21, 23, 28, 31 and 33 boxes (surface mounting only), add **$2.00** to list price and prefix catalog number with "R." Add for conduit hubs from table, inserting prefix letter in catalog number after the "R."

An MO device requires a separate Raintight Enclosure into which the MO Multi-Breaker (including standard enclosure) is placed. Enclosure Cat. No. R-14 without conduit hub, **$1.50** list price. Enclosure Cat. No. RD-14 with 1-inch conduit hub, **$2.15** list price. No other hub sizes available for MO Raintight Enclosures.

Additions for Conduit Hubs

Size in Inches	1 in Top		2 in Top		1 Top and Bottom	
	Prefix	Price Each	Prefix	Price Each	Prefix	Price Each
¾	C	**$0.65**	P	**$1.30**	J	**$1.30**
1	D	**.65**	Q	**1.30**	K	**1.30**
1¼	E	**.90**	T	**1.30**	L	**1.80**
1¼ Nipple	EE	**.90**	....	....	....	....
1½	G	**1.25***	....	....	....	....
2	H	**1.45***	....	....	....	....

*Not available for M1 Raintight Enclosures.

The 1¼-inch nipple instead of a hub is for attaching Westinghouse outdoor meters.

WESTINGHOUSE NOFUZE MULTI-BREAKERS

FUSELESS PROTECTION FOR HOMES AND SMALL COMMERCIAL BUILDINGS

Type M0 Multi-Breakers—25-Ampere Frame

For Ranges, Water Heaters, Etc.

No. and Capacity of 2-Wire 1-Pole Breakers	No. and Capacity of 3-Wire 2-Pole Breakers	Insulated Groundable Neutral	
		Catalog Number	Price Each
For 2-Wire Solid-Neutral 115-Volt A-C. Systems			
1–15A	....	**131110**	**$2.15**
1–20A	....	**131120**	**2.15**
1–25A	....	**131130**	**2.15**
2–15A	....	**131711***	**2.80**
2–20A	....	**131722***	**2.80**
2–25A	....	**131733***	**2.80**
1–15A 1–20A	....	**131712***	**2.80**
For 3-Wire Solid-Neutral 115/230-Volt A-C. Systems			
....	1–15A	**131611**	**$2.80**
....	1–20A	**131622**	**2.80**
....	1–25A	**131633**	**2.80**

No Neutral

For 2-Wire 115/230-Volt Alternating Current

No. and Capacity of 2-Pole Breakers	Catalog Number	Price Each
1–15A	**111611**	**$2.40**
1–20A	**111622**	**2.40**
1–25A	**111633**	**2.40**

*Can be used for 3-wire S.N. 115/230-Volt A-C. Systems. The 115/230-Volt Ratings are for use on systems where the voltage to ground does not exceed 115 volts.

Type M1 Multi-Breakers—50-Ampere Frame

For Ranges, Water Heaters, Etc.

No. and Capacity of 2-Wire 1-Pole Breakers	No. and Capacity of 3-Wire 2-Pole Breakers	No. and Capacity of 4-Wire 3-Pole Breakers Common Trip	Insulated Groundable Neutral	
			Catalog Number	Price Each
For 2-Wire Solid-Neutral 115-Volt A-C. Systems				
1–15A	....	....	**16501**	**$5.00**
1–20A	....	....	**16502**	**5.00**
1–25A	....	....	**16503**	**5.00**
1–35A	....	....	**16504**	**5.00**
1–50A	....	....	**16505**	**5.00**
2–15A	....	....	**16611**	**6.00**
2–20A	....	....	**16622**	**6.00**
2–25A	....	....	**16633**	**6.00**
2–35A	....	....	**16644**	**6.00**
2–50A	....	....	**16655**	**6.00**
1–15A 1–20A	....	....	**16612**	**6.00**
1–15A 1–25A	....	....	**16613**	**6.00**
For 3-Wire Solid-Neutral 115/230-Volt A-C. Systems				
....	1–10A	....	**16766**	**$6.30**
....	1–15A	....	**16711**	**6.30**
....	1–20A	....	**16722**	**6.30**
....	1–25A	....	**16733**	**6.30**
....	1–35A	....	**16744**	**6.30**
....	1–50A	....	**16755**	**6.30**
....	2–50A	....	**35502–50**	**10.10**
....	1–15A 1–35A	....	**35502–41**	**10.10**
For 3-Phase 4-Wire 115/230-Volt A-C. Systems				
....	....	1–15A	**282315**	**$13.00**
....	....	1–20A	**282320**	**13.00**
....	....	1–25A	**282325**	**13.00**
....	....	1–35A	**282335**	**19.00**
....	....	1–40A	**282350**	**19.00**

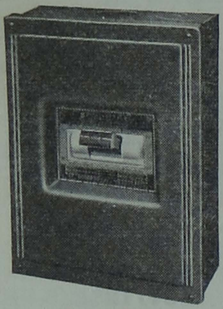
No Neutral

For 3-Wire 115/230-Volt A-C. Systems

No. and Capacity of 2-Pole Breakers	Catalog Number	Price Each	* No. and Capacity of 2-Pole Breakers	Catalog Number	Price Each
1–10A	**16966**	**$5.50**	1–25A	**16933**	**$5.50**
1–15A	**16911**	**5.50**	1–35A	**16944**	**5.50**
1–20A	**16922**	**5.50**	1–50A	**16955**	**5.50**

WESTINGHOUSE NOFUZE MULTI-BREAKERS

FUSELESS PROTECTION FOR HOMES AND SMALL COMMERCIAL BUILDINGS


Type M2
Cat. No. 313270

Type MB
Cat. No. 35051-51

Type M2 (100-amp. frame) Multi-Breaker unit has 2 or 3 poles, common trip and a common operating handle. An overload on any pole causes all poles to trip simultaneously. Type M1 (50-amp. frame common trip) is similar.

Type M2 Multi-Breakers—100-Ampere Frame

For Ranges, Water Heaters, Etc.

No. and Capacity of 3-Wire 2-Pole Breakers–Common Trip	No. and Capacity of 4-Wire 3-Pole Breakers–Common Trip	Insulated Groundable Neutral Catalog Number	Insulated Groundable Neutral Price Each
For 3-Wire Solid-Neutral 115/230-Volt A-C. Systems			
1–50A	....	**333250***	**$16.50**
1–70A	....	**333270***	**16.50**
1–90A	....	**333290***	**16.50**
1–100A	....	**333216***	**16.50**
For 3-Phase 4-Wire 115/230-Volt A-C. Systems			
....	1–50A	**333350***	**$30.00**
....	1–70A	**333370***	**30.00**
....	1–90A	**333390***	**30.00**
....	1–100A	**333316***	**30.00**

No Neutral

For 2-Wire 115/230-Volt A-C. Systems

No. and Capacity of 2-Pole Breakers Common Trip		Catalog Number	Price Each
1–50A	....	**313250***	**$15.00**
1–70A	....	**313270***	**15.00**
1–90A	....	**313290***	**15.00**
1–100A	....	**313216***	**15.00**

*This catalog number is for surface mounting. Add **$2.00** for flush mounting.

Type MB Nofuze Multi-Breakers

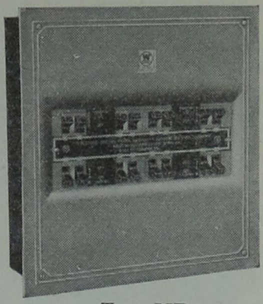
For homes, large or small; small stores; garages; farm buildings . . . for any A-C. circuit where fuse-type switches are used. Type MB circuit breaker encloses from 1 to 4 poles all of the same polarity. Main lug on side of breaker.

35-Amps. Main—For 2-Wire Solid-Neutral 115-Volt A-C. Systems

No. and Capacity 1-Pole Breakers	No. and Capacity 2-Pole Breakers	Insulated Groundable Neutral Catalog Number	Insulated Groundable Neutral Price Each
2–15A	....	**31020-01**	**$7.00**
1–15A 1–20A	....	**31020-21**	**7.00**
3–15A	....	**31030-01**	**8.00**
2–15A 1–20A	....	**31030-21**	**8.00**
4–15A	....	**31040-01**	**9.00**
3–15A 1–20A	....	**31040-21**	**9.00**

WESTINGHOUSE NOFUZE MULTI-BREAKERS

FUSELESS PROTECTION FOR HOMES AND SMALL COMMERCIAL BUILDINGS


Type MB
Cat. No. 57160-01

For homes, large or small; small stores; garages; farm buildings . . . for any A-C. circuit where fuse-type switches are used. Type MB circuit breaker encloses from 1 to 4 poles all of the same polarity. Main lug on side of breaker.

Type MB Nofuze Multi-Breaker

70-Amps. Main—For 3-Wire Solid-Neutral 115/230-Volt A-C. Systems

No. and Capacity 1-Pole Breakers	No. and Capacity 2-Pole Breakers	Insulated Groundable Neutral Catalog Number	Insulated Groundable Neutral Price Each
2–15A	....	**35020-01**	**$8.00**
3–15A	....	**35030-01**	**9.00**
4–15A	....	**35040-01**	**9.00**
3–15A 1–20A	....	**35040-21**	**9.00**
5–15A	....	**35050-01**	**10.00**
6–15A	....	**35060-01**	**11.00**
7–15A	....	**35070-01**	**12.00**
8–15A	....	**35080-01**	**13.00**
....	1–50A	**35001-50**	**8.00**
1–15A	1–15A	**35011-01**	**9.00**
2–15A	1–35A	**35021-41**	**9.00**
2–15A	1–50A	**35021-51**	**9.00**
3–15A	1–50A	**35031-51**	**10.00**
4–15A	1–35A	**35041-41**	**11.00**
4–15A	1–50A	**35041-51**	**11.00**
2–15A 2–20A	1–35A	**35041-47**	**11.00**
3–15A 1–20A	1–35A	**35041-46**	**11.00**
3–15A 1–20A	1–50A	**35041-56**	**11.00**
5–15A	1–50A	**35051-51**	**12.00**
6–15A	1–15A	**35061-11**	**13.00**
....	1–20A 1–50A	**35002-52**	**9.50**
1–15A	2–15A	**35012-11**	**10.50**
2–15A	1–20A 1–35A	**35022-46**	**11.50**
2–15A	1–20A 1–50A	**35022-56**	**11.50**
3–15A	1–25A 1–50A	**35032-57**	**12.50**
4–15A	1–20A 1–35A	**35042-46**	**13.50**
4–15A	1–25A 1–35A	**35042-47**	**13.50**
4–15A	1–20A 1–50A	**35042-56**	**13.50**
....	*3–15A	**35003-10**	**11.65**
1–15A	*3–15A	**35013-11**	**12.65**
2–15A	*3–15A	**35023-11**	**13.65**
....	*4–15A	**35004-10**	**13.80**

70-Amps. Main—For 3-Phase 4-Wire Solid Neutral 115/230-Volt A-C. Systems†

9–15A	....	**56090-01**	**$27.00**
10–15A	....	**56100-01**	**28.00**
11–15A	....	**56110-01**	**29.00**
12–15A	....	**56120-01**	**30.00**
13–15A	....	**56130-01**	**32.00**
14–15A	....	**56140-01**	**33.00**
15–15A	....	**56150-01**	**34.00**
16–15A	....	**56160-01**	**35.00**

*Where more than 2 double-pole circuits in Box No. 3 devices, or more than 4 double-pole in Box No. 5 devices are shown, this is accomplished by use of handle bales coupling outside single poles.

†For each additional double-pole circuit substituted for 2 single-pole circuits, in excess of 4 double-pole, add **$0.15** list each.

WESTINGHOUSE NOFUZE MULTI-BREAKERS

FUSELESS PROTECTION FOR HOMES AND SMALL COMMERCIAL BUILDINGS

Type MB—(Continued)

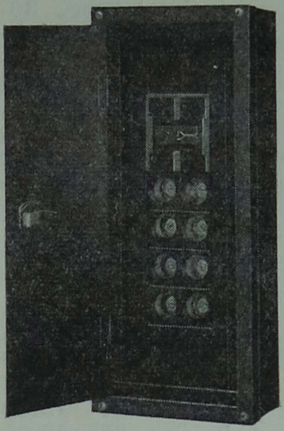
100-Amp. Main—For 3-Wire Solid-Neutral 115/230-Volt A-C. Systems

No. and Capacity 1-Pole Breakers	No. and Capacity 2-Pole Breakers	Insulated Groundable Neutral Catalog Number	Price Each
9–15A	....	**57090-01**	**$27.00**
10–15A	....	**57100-01**	**28.00**
11–15A	....	**57110-01**	**29.00**
12–15A	....	**57120-01**	**30.00**
13–15A	....	**57130-01**	**32.00**
14–15A	....	**57140-01**	**33.00**
15–15A	....	**57150-01**	**34.00**
16–15A	....	**57160-01**	**35.00**
7–15A	1–15A	**57071-11**	**27.00**
8–15A	1–15A	**57081-11**	**28.00**
9–15A	1–15A	**57091-11**	**29.00**
10–15A	1–15A	**57101-11**	**30.00**
11–15A	1–15A	**57111-11**	**32.00**
12–15A	1–15A	**57121-11**	**33.00**
13–15A	1–15A	**57131-11**	**34.00**
14–15A	1–15A	**57141-11**	**35.00**
5–15A	2–15A	**57052-11**	**27.00**
6–15A	2–15A	**57062-11**	**28.00**
7–15A	2–15A	**57072-11**	**29.00**
8–15A	2–15A	**57082-11**	**30.00**
9–15A	2–15A	**57092-11**	**32.00**
10–15A	2–15A	**57102-11**	**33.00**
11–15A	2–15A	**57112-11**	**34.00**
12–15A	2–15A	**57122-11**	**35.00**
3–15A	3–15A	**57033-11**	**27.00**
4–15A	3–15A	**57043-11**	**28.00**
5–15A	3–15A	**57053-11**	**29.00**
6–15A	3–15A	**57063-11**	**30.00**
7–15A	3–15A	**57073-11**	**32.00**
8–15A	3–15A	**57083-11**	**33.00**
9–15A	3–15A	**57093-11**	**34.00**
10–15A	3–15A	**57103-11**	**35.00**
1–15A	4–15A	**57014-11**	**27.00**
2–15A	4–15A	**57024-11**	**28.00**
3–15A	4–15A	**57034-11**	**29.00**
4–15A	4–15A	**57044-11**	**30.00**
5–15A	4–15A	**57054-11**	**32.00**
6–15A	4–15A	**57064-11**	**33.00**
7–15A	4–15A	**57074-11**	**34.00**
8–15A	4–15A	**57084-11**	**35.00**
....	*5–15A	**57005-11**	**28.15**
1–15A	*5–15A	**57015-11**	**29.15**
2–15A	*5–15A	**57025-11**	**30.15**
3–15A	*5–15A	**57035-11**	**32.15**
4–15A	*5–15A	**57045-11**	**33.15**
5–15A	*5–15A	**57055-11**	**34.15**
6–15A	*5–15A	**57065-11**	**35.15**
....	*6–15A	**57006-11**	**30.30**
1–15A	*6–15A	**57016-11**	**32.30**
2–15A	*6–15A	**57026-11**	**33.30**
3–15A	*6–15A	**57036-11**	**34.30**
4–15A	*6–15A	**57046-11**	**35.30**
....	*7–15A	**57007-11**	**33.45**
1–15A	*7–15A	**57017-11**	**34.45**
2–15A	*7–15A	**57027-11**	**35.45**
....	*8–15A	**57008-10**	**35.60**

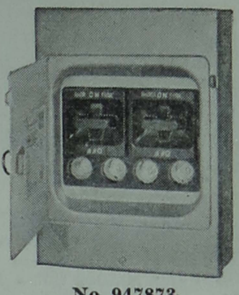
*Where more than 2 double-pole circuits in Box No. 3 devices, or more than 4 double-pole in Box No. 5 devices are shown, this is accomplished by use of handle bales coupling outside single poles.

WESTINGHOUSE SERVICE SWITCHES

COMBINATION FUSED ENTRANCE SWITCHES AND BRANCH CIRCUIT FUSE PANELS IN ONE UNIT



No. 966836



No. 947873

Mains—30-Amp., 2 or 3 Poles, 1 or 2 Blades 1 or 2 Fused Poles

Amp.	Poles	Ganging Cat. No.	Ganging Price Each	Branch Fuses	Non-Ganging Cat. No.	Non-Ganging Price Each
		1 Blade, 1 Fused Pole				
30	2	**966800**	**$4.50**	2	**966805**	**$5.50**
30	2	....	....	4	**966806**	**7.00**
		2 Blades, 2 Fused Poles				
30	2	**966801**	**5.50**	2	**966807**	**6.50**
30	2	**¶966802**	**12.50**	4	**966808**	**8.00**
30	3	**966803**	**5.50**	2	**966809**	**6.50**
30	3	....	....	4	**966810**	**8.00**

¶Has provision for two meter sockets at top for "off peak" hot water service.

Mains—60-Amp., 3 Poles, 2 Blades, 2 Fused Poles

Flush — Aluminum 30-Amp. Branch Fuses	Flush — Aluminum Cat. No.	Flush — Aluminum Price Each	Surface — Black 30-Amp. Branch Fuses	Surface — Black Cat. No.	Surface — Black Price Each
0	**966838**	**$7.20**	0	**966832**	**$6.20**
2	**966839**	**9.20**	2	**966833**	**8.20**
4	**966840**	**9.50**	4	**966834**	**8.50**
6	**966841**	**12.80**	4	**940616**	**8.50**
8	**966842**	**18.50**	6	**966835**	**12.80**
--	....	....	8	**966836**	**17.50**

Fuseless Main Switches

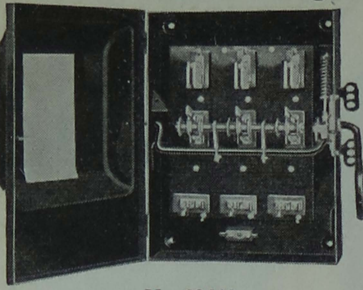
Main Switch Cap.	Branch Fuses 30A.	Branch Fuses 60A.	Surface Cat. No.	Surface Price Each	Flush Cat. No.	Flush Price Each
30	4	--	**966844**	**$6.50**	**966845**	**$7.00**
60	4	2	**966846**	**8.30**	**966847**	**9.30**
30	6	--	**966850**	**7.50**	**966851**	**8.00**

Mains—60-Amp., 3 Poles, 2 Blades, 2 Fused Poles

Accessible Main Fuses Without Externally-Operated Switch: Fuse Break Branch Fuses 30A.	Fuse Break Branch Fuses 60A.	Non-Meter Test Cat. No.	Non-Meter Test Price Each	Sealable Main Fuses With Externally-Operated Switch: Fuse Break Branch Fuses 30A.	Fuse Break Branch Fuses 60A.	Puller Type Cat. No.	Puller Type Price Each
		Surface Mounting					
0	2	**947871**	**$10.00**	0	0	**941785**	**$6.20**
0	0	**940615†‡***	**6.20**	0	0	**919901***	**6.20**
2	2	**947872**	**12.50**	--	--	....	....
4	2	**947873**	**8.55**	--	--	....	....
4	2	**966848§**	**8.55**	--	--	....	....
4	2	**947939†***	**8.55**	--	--	....	....
6	2	**835573***	**14.50**	--	--	....	....
6	2	**919932**	**14.50**	--	--	....	....
		Flush Mounting					
4	2	**835148**	**9.55**				
4	2	**966849§**	**9.55**				
6	2	**940619**	**14.50**				

*Channel test type. †Has Meter end wall. §Main and range switches are wired in parallel. ‡Has 60-amp. range connection tap.

SQUARE D SAFETY SWITCHES
TYPE A SAFETY SWITCHES
Fusible—Single Throw



Heavy-duty industrial type. 30-600 amp., quick-make and quick-break; interlocked cover control. 800-2400 amp., quick-break only; cover not interlocked.

No. 89412

250 Volts D.C., 230 Volts A.C.

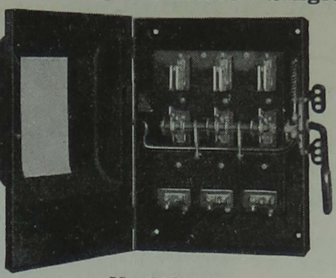
30 Amperes

Cat. No.	Poles	Blades	Fused Poles	Neutral	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
#88251	2	2	2	--------	2	5	17	$10.50
*86251	2	2	2	--------	2	5	17	16.00
#88351	3	3	3	--------	3	----	20	13.50
*86351	3	3	3	--------	3	----	20	19.00
#89311	3	2	2	S/N	3	----	17	12.00
*86451	4	4	4	--------	3	----	24	20.50
#89411	4	3	3	S/N	3	----	20	20.50
*87511	5	4	4	S/N	----	----	24	23.50
60 Amperes								
88252	2	2	2	--------	5	10	16	17.00
88352	3	3	3	--------	7½	----	20	22.50
89312	3	2	2	S/N	7½	----	17	19.00
88452	4	4	4	--------	10	----	24	27.00
89412	4	3	3	S/N	7½	----	20	26.00
89512	5	4	4	S/N	----	----	24	30.50
100 Amperes								
88253	2	2	2	--------	10	15	25	26.00
88353	3	3	3	--------	15	----	38	34.00
89313	3	2	2	S/N	15	----	25	30.50
88453	4	4	4	--------	20	----	55	45.00
89413	4	3	3	S/N	15	----	38	40.50
89513	5	4	4	S/N	----	----	55	51.00
200 Amperes								
88254	2	2	2	--------	15	30	56	45.00
88354	3	3	3	--------	30	----	63	50.50
89314	3	2	2	S/N	30	----	46	49.50
88454	4	4	4	--------	30	----	86	67.50
89414	4	3	3	S/N	30	----	63	62.00
89514	5	4	4	S/N	----	----	86	79.00
400 Amperes								
88255	2	2	2	--------	30	50	90	101.50
88355	3	3	3	--------	50	----	135	112.50
89315	3	2	2	S/N	50	----	90	112.50
88455	4	4	4	--------	50	----	150	146.50
89415	4	3	3	S/N	50	----	135	129.50
89515	5	4	4	S/N	----	----	150	168.00
600 Amperes								
88256	2	2	2	--------	----	----	155	146.50
88356	3	3	3	--------	----	----	240	175.00
89316	3	2	2	S/N	----	----	155	163.50
88456	4	4	4	--------	----	----	275	231.00
89416	4	3	3	S/N	----	----	240	200.50
89516	5	4	4	S/N	----	----	275	276.00
800 Amperes—Double Lugs—Quick Break Only								
88257	2	2	2	--------	----	----	160	248.00
88357	3	3	3	--------	----	----	280	338.00
89317	3	2	2	S/N	----	----	160	270.50
88457	4	4	4	--------	----	----	347	434.00
89417	4	3	3	S/N	----	----	280	383.00
89517	5	4	4	S/N	----	----	285	440.00

*60 ampere switches with 30 ampere fuse spacing and clips. #Front operated and has elevated removable base. Interlock is not keyed.

3-Wire Switching Neutral: these fusible switches can be furnished with unfused switching neutral by omitting the neutral fuse terminals and adding lugs for load connection to blade hinge post on neutral pole. Add "SWN" to regular catalog numbers. Prices same as for regular switches.

SQUARE D SAFETY SWITCHES
TYPE A SAFETY SWITCHES
Fusible—Single Throw



Heavy-duty industrial type. 30-600 amp., quick-make and quick-break; interlocked cover control. 800-2400 amp., quick-break only; cover not interlocked.

No. 88341

250 Volts D.C., 230 Volts A.C.

1200 Amperes—Double Lugs—Quick Break Only

Cat. No.	Poles	Blades	Fused Poles	Neutral	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
88258	2	2	2	--------	----	----	238	$344.00
88358	3	3	3	--------	----	----	350	434.00
89318	3	2	2	S/N	----	----	238	383.00
88458	4	4	4	--------	----	----	590	575.00
89418	4	3	3	S/N	----	----	350	476.00
89518	5	4	4	S/N	----	----	355	608.00
1800 Amperes—Triple Lugs—Quick Break Only								
88259	2	2	2	--------	----	----	------	632.50
88359	3	3	3	--------	----	----	------	890.00
88459	4	4	4	--------	----	----	600	1150.00
2400 Amperes—Quadruple Lugs—Quick Break Only								
88250	2	2	2	--------	----	----	------	766.00
88350	3	3	3	--------	----	----	------	1055.00
88450	4	4	4	--------	----	----	------	1442.00
600 Volts D.C., 575 Volts A.C.								
***30 Amperes**								
#88261	2	2	2	--------	----	7½	34	20.50
#88341	3	3	3	--------	7½	----	25	25.00
#86441	4	4	4	--------	7½	----	32	30.50
60 Amperes								
88262	2	2	2	--------	----	15	26	21.50
88342	3	3	3	--------	20	----	25	26.00
88442	4	4	4	--------	20	----	32	32.50
100 Amperes								
88263	2	2	2	--------	----	25	44	34.00
88343	3	3	3	--------	30	----	41	39.50
88443	4	4	4	--------	40	----	45	52.00
200 Amperes								
88264	2	2	2	--------	----	50	70	53.00
88344	3	3	3	--------	50	----	70	65.50
88444	4	4	4	--------	50	----	80	79.00
400 Amperes								
88265	2	2	2	--------	----	----	----	124.00
88345	3	3	3	--------	----	----	----	135.00
88445	4	4	4	--------	----	----	----	174.50
600 Amperes								
88266	2	2	2	--------	----	----	----	197.00
88346	3	3	3	--------	----	----	----	225.00
88446	4	4	4	--------	----	----	----	270.00
800 Amperes—Double Lugs—Quick Break Only								
†88247	2	2	2	--------	----	----	----	304.00
88347	3	3	3	--------	----	----	----	394.00
88447	4	4	4	--------	----	----	----	507.00
1200 Amperes—Double Lugs—Quick Break Only								
†88248	2	2	2	--------	----	----	----	428.00
88348	3	3	3	--------	----	----	----	518.00
88448	4	4	4	--------	----	----	----	647.50

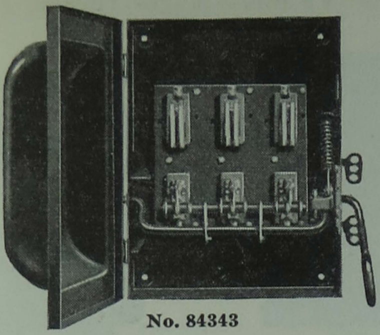
*60 ampere switches with 30 ampere fuse spacings and clips. †250 volts D.C., 575 volts A.C. only. #Front operated and has elevated removable base. Interlock is not keyed.

3-Wire Switching Neutral: these fusible switches can be furnished with unfused switching neutral by omitting the neutral fuse terminals and adding lugs for load connection to blade hinge post on neutral pole. Add "SWN" to regular catalog numbers. Prices same as for regular switches.

SQUARE D SAFETY SWITCHES

TYPE A SAFETY SWITCHES

Non-Fusible—Single Throw



No. 84343

Heavy duty industrial. 30-600 ampere switches quick-break, quick-make. 800-2400 ampere switches quick-break only, cover not interlocked. 600-575 volt equipped with arc suppressors. Interlocked cover; individual bases. Positive pressure fuse clips and jaws.

250 Volts D.C./230 Volts A.C.
No Arc Suppressors

Cat. No.	Amps.	Poles	Blades	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
#84251	30	2	2	3	5	15	$ 9.00
#84351	30	3	3	5	....	20	11.00
81451	30	4	4	5	....	25	20.50
84252	60	2	2	7½	10	16	12.50
84253	100	2	2	15	15	23	25.00
84254	200	2	2	25	30	40	31.50
84255	400	2	2	50	50	78	67.50
84256	600	2	2	....	....	120	112.50
†84257	800	2	2	....	....	135	220.00
†84258	1200	2	2	....	....	200	299.00
‡84259	1800	2	2	....	....	......	518.00
▲84250	2400	2	2	....	....	......	654.00

250-600 Volts D.C./230-575 V. A.C.
Arc Suppressors

Cat. No.	Amps.	Poles	Blades	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
#84261	30	2	2	....	7½	16	12.50
#84341	30	3	3	10	....	16	14.50
84262	60	2	2	....	15	16	17.00
84342	60	3	3	25	....	21	20.50
84442	60	4	4	25	....	29	27.00
84263	100	2	2	....	25	23	26.00
84343	100	3	3	40	....	29	30.50
84443	100	4	4	40	....	36	39.50
84264	200	2	2	....	50	40	35.00
84344	200	3	3	50	....	55	43.00
84444	200	4	4	50	....	90	59.00
84265	400	2	2	....	....	78	101.50
84345	400	3	3	....	....	102	112.50
84445	400	4	4	....	....	120	146.50
84266	600	2	2	....	....	120	146.50
84346	600	3	3	....	....	134	180.50
84446	600	4	4	....	....	185	220.00
*†84247	800	2	2	....	....	135	220.00
†84347	800	3	3	....	....	170	293.00
†84447	800	4	4	....	....	205	378.00
*†84248	1200	2	2	....	....	200	299.00
†84348	1200	3	3	....	....	208	394.00
†84448	1200	4	4	....	....	255	518.00
*‡84249	1800	2	2	....	....	......	518.00
‡84349	1800	3	3	....	....	......	694.00
‡84449	1800	4	4	....	....	......	1010.00
*▲84240	2400	2	2	....	....	......	654.00
▲84340	2400	3	3	....	....	......	952.00
▲84440	2400	4	4	....	....	......	1251.00

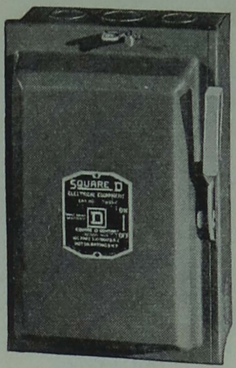
*250 volts D.C./575 volts A.C. only. #Front operated and has elevated removable base. Interlock is not keyed.

†Furnished with double lugs. Single lugs furnished on order. No cover control. Quick break only. ‡Triple lugs. No cover control. Quick break only. ▲Quadruple lugs. No cover control. Quick break only.

SQUARE D SAFETY SWITCHES

TYPE A SAFETY SWITCHES

Fusible and Not Fusible—Single Throw



No. 51261
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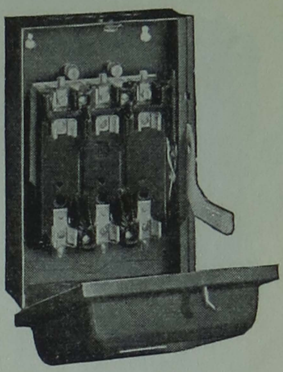


No. 56352
Cover Open

Compact heavy duty industrial. Front operated. Quick break, quick make. Double break blades; interlocked cover; elevated removable base. Positive pressure fuse clips and jaws.

Fusible—250 Volts D.C./230 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
56251	30	2	2	2	2	5	10	$10.50
56351	30	3	3	3	3	....	10	13.50
†59311	30	3	2	2	3	....	10	12.00
56252	60	2	2	2	5	10	16	17.00
56352	60	3	3	3	7½	....	16	22.50
†59312	60	3	2	2	7½	....	16	19.00
56253	100	2	2	2	10	15	35	26.00
56353	100	3	3	3	15	....	35	34.00
†59313	100	3	2	2	15	....	35	30.50
56254	200	2	2	2	15	30	50	45.00
56354	200	3	3	3	30	....	50	50.50
†59314	200	3	2	2	30	....	....	49.50

Fusible—600 Volts D.C./575 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
56261	30	2	2	2	....	7½	16	20.50
56341	30	3	3	3	7½	....	16	25.00
56262	60	2	2	2	....	15	20	21.50
56342	60	3	3	3	20	....	20	26.00
56263	100	2	2	2	....	25	35	34.00
56343	100	3	3	3	30	....	....	39.50
56264	200	2	2	2	....	50	....	53.00
56344	200	3	3	3	50	....	....	65.50

Not Fusible—250 Volts D.C./230 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
51251	30	2	2	..	3	5	10	9.00
51351	30	3	3	..	5	....	10	11.00
51252	60	2	2	..	7½	10	16	12.50
51253	100	2	2	..	15	15	35	25.00
51254	200	2	2	..	25	30	50	31.50

Not Fusible—600 Volts D.C./575 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
51261	30	2	2	..	....	7½	10	12.50
51341	30	3	3	..	10	....	10	14.50
51262	60	2	2	..	....	15	16	17.00
51342	60	3	3	..	25	....	16	20.50
51263	100	2	2	..	....	25	35	26.00
51343	100	3	3	..	40	....	....	30.50
51264	200	2	2	..	....	50	....	35.00
51344	200	3	3	..	50	....	....	43.00

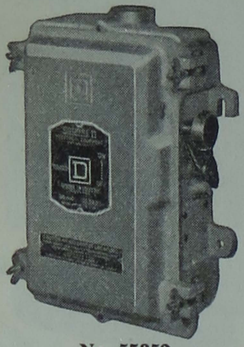
†Solid neutral.

3-Wire Switching Neutral: the above fusible switches can be furnished with unfused switching neutral by omitting the neutral fuse terminals and adding lugs for load connection to blade hinge post on neutral pole. Add "SWN" to regular catalog numbers. Prices same as for regular switches.

SQUARE D SAFETY SWITCHES

TYPE A SAFETY SWITCHES

Dust Tight—Weatherproof
Fusible and Not Fusible—Single Throw



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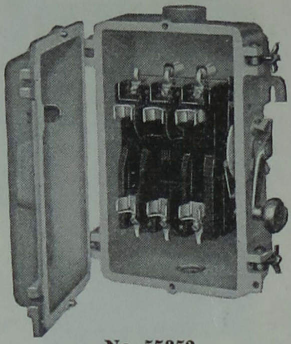


No. 55352
Cover Open

Fusible—250 Volts D.C./230 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
55251	30	2	2	2	2	5	20	$38.00
55351	30	3	3	3	3	....	20	43.00
‡50311	30	3	2	2	3	....	20	43.00
55252	60	2	2	2	5	10	20	50.00
55352	60	3	3	3	7½	....	20	57.00
‡50312	60	3	2	2	7½	....	20	57.00
55253	100	2	2	2	10	15	60	130.00
55353	100	3	3	3	15	....	60	140.00
‡50313	100	3	2	2	15	....	60	140.00
55254	200	2	2	2	15	30	60	200.00
55354	200	3	3	3	30	....	60	210.00
‡50314	200	3	2	2	30	....	60	210.00

Fusible—600 Volts D.C./575 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
55261	30	2	2	2	....	7½	20	51.00
55341	30	3	3	3	7½	....	20	56.00
55262	60	2	2	2	....	15	20	62.00
55342	60	3	3	3	20	....	20	69.00
55263	100	2	2	2	....	25	50	140.00
55343	100	3	3	3	30	....	50	150.00
55264	200	2	2	2	....	50	60	210.00
55344	200	3	3	3	50	....	60	220.00

Not Fusible—250 Volts D.C./230 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
53251	30	2	2	..	3	5	20	37.00
53351	30	3	3	..	5	....	20	42.00

Not Fusible—600 Volts D.C./575 Volts A.C.
Dust Tight—Weatherproof

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
†*53261	30	2	2	..	....	7½	20	37.00
†*53341	30	3	3	..	10	....	20	42.00
†*53262	60	2	2	..	....	15	20	47.00
†*53342	60	3	3	..	25	....	20	54.00
†*53263	100	2	2	..	....	25	50	125.00
†*53343	100	3	3	..	40	....	50	135.00
†*53264	200	2	2	..	....	50	60	190.00
†*53344	200	3	3	..	50	....	60	200.00

Explosion Resisting§

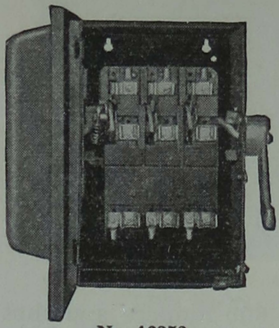
Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
54261	30	2	2	..	....	7½	35	67.50
54341	30	3	3	..	10	....	70	72.50
54262	60	2	2	..	....	15	140	80.00
54342	60	3	3	..	25	....	150	91.50
54263	100	2	2	..	....	25	350	203.00
54343	100	3	3	..	40	....	365	209.00
54264	200	2	2	..	....	50	......	244.00
54344	200	3	3	..	50	....	......	258.00

†Weatherproof. ‡Solid neutral.
*Dust tight. Specify catalog number and add letter -D, if dust tight enclosure is desired. Approved for Class II, Group G hazardous locations.
§Explosision Resisting switches 100 ampere and smaller approved by Underwriters' Laboratories, Inc. for Class I, Group D, hazardous locatons.

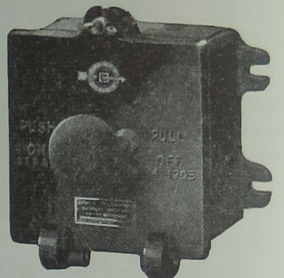
SQUARE D SAFETY SWITCHES

TYPE C SAFETY SWITCHES

Fusible—Single Throw



No. 46352



No. 7251

Intermediate duty industrial. Quick break, quick make. No interlock; positive pressure fuse clips and jaws.

250 Volts D.C., 230 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
45251	30	2	2	2	2	5	5	$4.50
▲7251	30	2	2	2	....	....	10	22.50
*46251	30	2	2	2	2	5	14	10.00
45351	30	3	3	3	3	....	10	7.00
*46351	30	3	3	3	3	....	18	12.50
‡47311	30	3	2	2	3	....	6	6.00
45451	30	4	4	4	3	....	12	14.50
*46451	30	4	4	4	3	....	21	17.00
‡47411	30	4	3	3	3	....	10	10.00
‡47511	30	5	4	4	....	....	12	16.00
46252	60	2	2	2	5	10	14	11.50
46352	60	3	3	3	7½	....	16	12.50
‡47312	60	3	3	2	7½	....	14	11.50
46452	60	4	4	4	10	....	22	17.00
‡47412	60	4	3	3	7½	....	16	14.50
‡47512	60	5	4	4	....	....	22	25.00
46253	100	2	2	2	10	15	20	20.00
46353	100	3	3	3	15	....	27	25.00
‡47313	100	3	2	2	15	....	20	20.00
46453	100	4	4	4	20	....	44	37.50
‡47413	100	4	3	3	15	....	27	29.00
‡47513	100	5	4	4	....	....	44	50.00
46254	200	2	2	2	15	30	38	27.50
46354	200	3	3	3	30	....	46	36.50
‡47314	200	3	2	2	30	....	38	31.50
46454	200	4	4	4	30	....	90	60.00
‡47414	200	4	3	3	30	....	46	44.00
‡47514	200	5	4	4	....	....	90	70.00
46255	400	2	2	2	30	50	85	80.00
46355	400	3	3	3	50	....	130	92.50
‡47315	400	3	2	2	30	....	85	87.50
46455	400	4	4	4	50	....	150	131.50
‡47415	400	4	3	3	50	....	130	112.50
‡47515	400	5	4	4	....	....	150	163.50
46256	600	2	2	2	....	....	....	124.00
46356	600	3	3	3	....	....	....	144.00
‡47316	600	3	2	2	....	....	....	138.00
46456	600	4	4	4	....	....	....	207.00
‡47416	600	4	3	3	....	....	....	197.50
‡47516	600	5	4	4	....	....	....	253.50

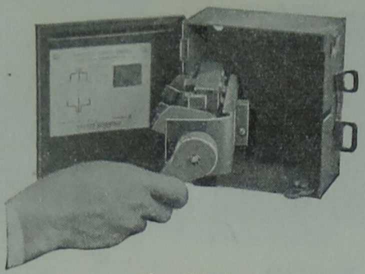
*60-ampere switches with 30-ampere fuse spacings and clips. ‡Solid neutral. ▲Cast iron enclosure.

3-Wire Switching Neutral: the above fusible switches can be furnished with unfused switching neutral by omitting the neutral fuse terminals and adding lugs for load connection to blade hinge post on neutral pole. Add "SWN" to regular catalog numbers. Prices same as for regular switches.

SQUARE D SAFETY SWITCHES

TYPE C SAFETY SWITCHES

Fusible and Not Fusible—Single Throw



No. 47311
Showing Swing-out for Easy Wiring

Fusible—575 Volts A.C. with Arc Suppressors

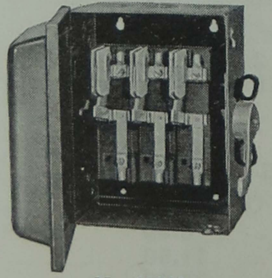
Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
45341†	30	3	3	3	7½	....	18	$13.50
46441	30	4	4	4	7½	....	27	22.50
46342†	60	3	3	3	20	....	17	17.00
46442	60	4	4	4	20	....	32	25.00
46343	100	3	3	3	30	....	27	35.00
46443	100	4	4	4	30	....	55	50.00
46344	200	3	3	3	50	....	65	52.50
46444	200	4	4	4	50	....	90	71.50

Not Fusible—250 Volts D.C./230 Volts A.C. Without Arc Suppressors

43251†	30	2	2	..	3	5	5	4.50
43351†	30	3	3	..	5	....	9	7.00
41252†	60	2	2	..	7½	10	10	10.00
41352†	60	3	3	..	10	....	14	11.50
41452	60	4	4	..	15	....	21	17.00
41253	100	2	2	..	15	15	13	20.00
41353	100	3	3	..	20	....	21	21.50
41453	100	4	4	..	25	....	31	34.00
41254	200	2	2	..	25	30	35	26.50
41354	200	3	3	..	40	....	37	31.50
41454	200	4	4	..	50	....	82	52.50
41255	400	2	2	..	50	50	66	56.50
41355	400	3	3	..	50	....	84	71.50
41455	400	4	4	..	50	....	87	94.00
41256	600	2	2	..	....	....	....	95.00
41356	600	3	3	..	....	....	....	113.00
41456	600	4	4	..	....	....	....	188.00

†Has swing-out interior for easy wiring.

TYPE C WITH ARC SUPPRESSORS



No. 41342

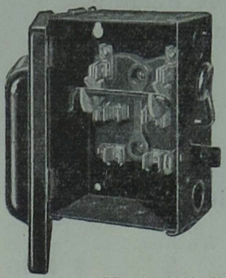
Not Fusible—575 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	H.P. Rating A.C.	H.P. Rating D.C.	Wt. Lbs.	Price Each
43341	30	3	3	..	7½	....	9	$10.00
41342	30–60	3	3	..	15	....	14	13.50
41442	30–60	4	4	..	25	....	21	22.50
41343	100	3	3	..	30	....	21	27.50
41443	100	4	4	..	40	....	31	39.00
41344	200	3	3	..	50	....	37	40.00
41444	200	4	4	..	50	....	82	57.50

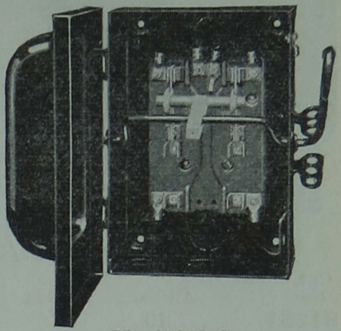
SQUARE D SAFETY SWITCHES

TYPE D SAFETY SWITCHES

Fusible—Single Throw



No. 98251-C

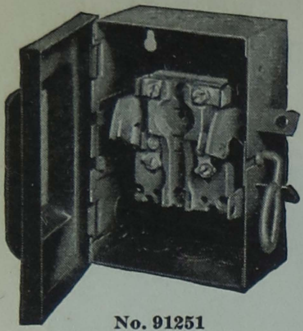


No. 97312-C

125-250 Volts D.C./115-230 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Fused Poles	Neutral	Wt. Lbs.	Price Each
99211-C	30	2	2	2 Plug	....	5	$1.70
97211-C	30	2	1	1 Plug	S/N	4	1.60
99311	30	3	3	3 Plug	....	6	3.40
97311-C	30	3	2	2 Plug	S/N	4	2.00
96411	30	4	4	4 Plug	....	11	7.30
98251-C	30	2	2	2 Cart.	....	5	2.20
97251-C	30	2	2	1 Cart.	S/N	5	2.20
99351-C	30	3	3	3 Cart.	....	9	4.10
97351-C	30	3	2	2 Cart.	S/N	7	3.40
96451	30	4	4	4 Cart.	....	12	7.90
97451	30	4	3	3 Cart.	S/N	12	7.30
97551	30	5	4	4 Cart.	S/N	12	10.70
96252-C	60	2	2	2	....	14	6.20
96352-C	60	3	3	3	....	16	7.90
97312-C	60	3	2	2	S/N	14	6.20
96452	60	4	4	4	....	22	14.10
97412	60	4	3	3	S/N	23	11.80
97512	60	5	4	4	S/N	....	18.60
96253	100	2	2	2	....	20	15.00
96353	100	3	3	3	....	27	16.50
97313	100	3	2	2	S/N	18	15.50
96453	100	4	4	4	....	44	30.00
97413	100	4	3	3	S/N	41	25.00
97513	100	5	4	4	S/N	....	39.00
96254	200	2	2	2	....	38	25.00
96354	200	3	3	3	....	46	31.50
97314	200	3	2	2	S/N	43	27.50
96454	200	4	4	4	....	90	56.50
97414	200	4	3	3	S/N	85	41.50
97514	200	5	4	4	S/N	....	66.50
96255	400	2	2	2	....	85	80.00
96355	400	3	3	3	....	130	92.50
97315	400	3	2	2	S/N	85	87.50
96455	400	4	4	4	....	150	131.50
97415	400	4	3	3	S/N	160	112.50
97515	400	5	4	4	S/N	....	163.50
96256	600	2	2	2	....	....	124.00
96356	600	3	3	3	....	....	144.00
97316	600	3	2	2	S/N	....	138.00
96456	600	4	4	4	....	....	207.00
97416	600	4	3	3	S/N	....	197.50
97516	600	5	4	4	S/N	....	253.50

SQUARE D SAFETY SWITCHES



TYPE D SAFETY SWITCHES

Not Fusible
Single Throw

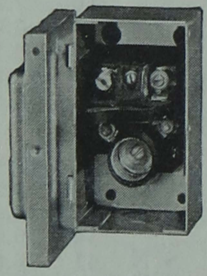
No. 91251

250 Volts D.C./230 Volts A.C.

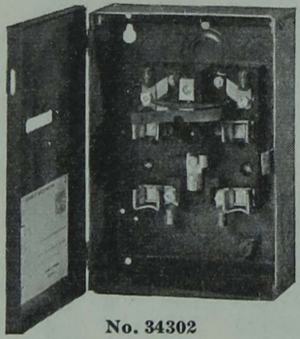
Cat. No.	Amps.	Poles	Blades	Shpg. Wt. Lbs.	Price Each
91251	30	2	2	5	**$ 2.00**
91351	30	3	3	6	**3.50**
91451	30	4	4	12	**7.00**
91252	60	2	2	10	**5.50**
91352	60	3	3	14	**7.50**
91452	60	4	4	21	**12.50**
91253	100	2	2	12	**14.00**
91353	100	3	3	21	**15.00**
91453	100	4	4	31	**26.50**
91254	200	2	2	35	**21.50**
91354	200	3	3	37	**29.00**
91454	200	4	4	82	**45.00**
91255	400	2	2	66	**56.50**
91355	400	3	3	84	**71.50**
91455	400	4	4	87	**94.00**
91256	600	2	2	110	**95.00**
91356	600	3	3	130	**113.00**
91456	600	4	4	150	**188.00**

TYPE D BLUE LABEL SWITCHES

Fusible—Single Throw



No. 90211



No. 34302

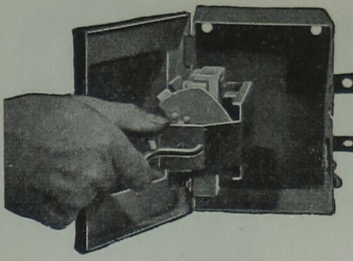
Plug fuses are permissible for use on all circuits not exceeding 30 amperes on systems not more than 125 volts, but including any feeder or circuit of a system having a grounded neutral, if no wire of the feeder or circuit exceeds 150 volts to ground.

Rotor Disc Type—Front Operated
125-250 Volts D.C./115-230 Volts A.C.

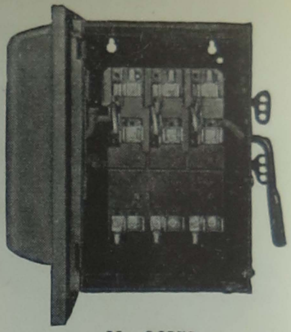
Cat. No.	Amps.	Poles	Blades	Fused Poles	Neutral	Wt. Lbs.	Price Each
93211	30	2	2	2 Plug	....	3	**$1.70**
***93211-C**	30	2	2	2 Plug	....	3	**2.50**
90211	30	2	1	1 Plug	S/N	2	**1.60**
†93011	30	2	2	4 Plug	....	6	**5.40**
‡93011M	30	4	4	4 Plug	....	6	**6.50**
90311	30	3	2	2 Plug	S/N	3	**2.00**
93251	30	2	2	2 Cart.	....	3	**2.20**
90351	30	3	2	2 Cart.	S/N	3	**3.40**
34302	60	3	2	2 Cart.	S/N	6	**6.20**

*Same as 93211 but has fibre shield over connections. †Dual Water Heater Switch. Two 93211 in one box. ‡Same as 93011 with fibre shield.

SQUARE D SAFETY SWITCHES
WITH SWING-OUT INTERIORS



No. 97251



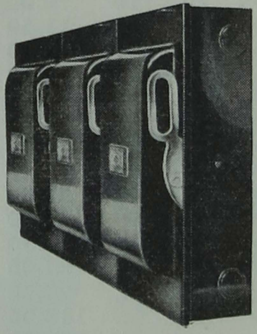
No. 96352

Fusible

Cat. No.	Amps.	Poles	Blades	Fused Poles	Neutral	Wt. Lbs.	Price Each
99211	30	2	2	2 Plug	......	5	**$2.20**
99311	30	3	3	3 Plug	......	6	**3.40**
97211	30	2	2	2 Plug	S/N	4	**2.00**
97311	30	3	2	2 Plug	S/N	5	**2.50**
98251	30	2	2	2 Cart.	......	5	**2.70**
99351	30	3	3	3 Cart.	......	9	**4.60**
97251	30	2	2	1 Cart.	S/N	5	**2.60**
97351	30	3	2	2 Cart.	S/N	7	**3.90**
97411	30	4	3	3 Plug	S/N	12	**7.00**
97451	30	4	3	3 Cart.	S/N	12	**7.30**
96252	60	2	2	2	......	14	**6.20**
96352	60	3	3	3	......	16	**7.90**
97312	60	3	2	2	S/N	14	**6.20**

FRONT OPERATED SWITCHES

Surface or Semi-Flush Mounting



No. F46352

SINGLE THROW—FUSIBLE

Slow Make—Slow Break
Porcelain Base
125-250 Volts

Amps.	Cat. No.	Poles	Price Each
30	**F97211**	2	**$1.60**
30	**F99211**	2	**1.70**
30	**F98211**	2	**2.20**
30	**F97311**	3	**2.00**
30	**F97351**	3	**2.40**
30	**F99311**	3	**3.40**

SINGLE THROW—FUSIBLE

Quick Break Only—H.P. Rated
230 Volts A.C.—250 Volts D.C.

	2-POLE			3-POLE		
Amps.	Cat. No.	H.P.	Price Each	Cat. No.	H.P.	Price Each
30	**F46251**	2	**$10.00**	**F46351**	3	**$12.50**
60	**F46252**	5	**11.50**	**F46352**	7½	**12.50**
100	**F46253**	..	**20.00**	**F46353**	15	**25.00**
200	**F46254**	..	**27.50**	**F46354**	30	**36.50**

3-Wire Solid Neutral
(2 Blades, 2 Fuses)

Amps.	Cat. No.	H.P.	Price Each	Cat. No.	H.P.	Price Each
30	**F47311**	..	**6.00**	....	....	....
60	**F47312**	..	**11.50**	....	....	....
100	**F47313**	..	**20.00**	....	....	....
200	**F47314**	..	**31.50**	....	....	....

SINGLE THROW—NOT FUSIBLE

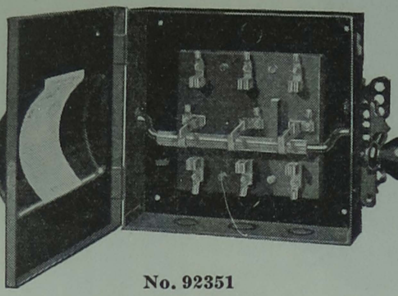
230 Volts A.C.—250 Volts D.C.

	2-POLE			3-POLE		
Amps.	Cat. No.	H.P.	Price Each	Cat. No.	H.P.	Price Each
30	**F41251**	2	**$ 4.50**	**F41351**	3	**$ 7.00**
60	**F41252**	5	**10.00**	**F41352**	7½	**11.50**
100	**F41253**	..	**20.00**	**F41353**	15	**21.50**
200	**F41254**	..	**26.50**	**F41354**	30	**31.50**

SQUARE D SAFETY SWITCHES

DOUBLE THROW SWITCHES

Not Fusible



No. 92351

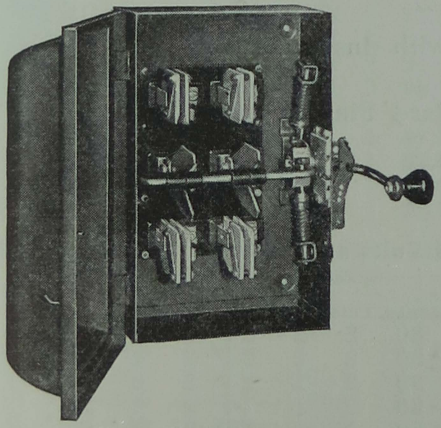
For motor reversing or double power supply. Not quick break. Slate bases. The 575-volt starters equipped with arc suppressors.

250 Volts D.C.—230 Volts A.C.

Cat. No.	Amps.	Poles	Blades	Shpg. Wt. Lbs.	Price Each
92251	30	2	2	10	**$14.50**
92351	30	3	3	14	**17.00**
92451	30	4	4	20	**25.00**
92252	60	2	2	16	**19.00**
92352	60	3	3	22	**22.50**
92452	60	4	4	27	**36.00**
92253	100	2	2	24	**34.00**
92353	100	3	3	30	**41.50**
92453	100	4	4	58	**74.50**
92254	200	2	2	30	**47.50**
92354	200	3	3	65	**69.00**
92454	200	4	4	95	**108.00**
92255	400	2	2	81	**135.00**
92355	400	3	3	110	**181.00**
92455	400	4	4	130	**243.50**
92256	600	2	2	90	**191.50**
92356	600	3	3	140	**252.50**
92456	600	4	4	175	**316.00**

DOUBLE THROW SWITCHES

Not Fusible—575 Volts A.C.



No. 92243

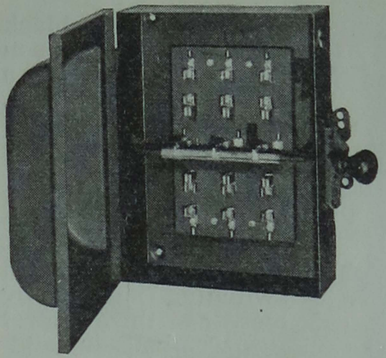
Sheet Metal Boxes

	2-Pole		3-Pole		4-Pole	
Amps.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
30–60	92242	**$21.50**	92342	**$25.00**	92442	**$39.50**
100	92243	**37.00**	92343	**45.00**	92443	**84.50**
200	92244	**53.00**	92344	**73.00**	92444	**118.00**
400	92245	**152.00**	92345	**191.50**	92445	**265.00**
600	92246	**214.00**	92346	**277.00**	92446	**344.00**

SQUARE D SAFETY SWITCHES

DOUBLE THROW SWITCHES

Fusible Top and Bottom



For motor reversing or double power supply. Not quick break. These switches have slate bases. 575-volt equipped with arc suppressors. Positive pressure fuse clips.

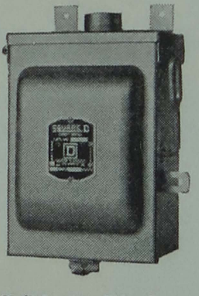
No. 92351-F

250 Volts D.C./230 Volts A.C.
575 Volts A.C.

		250 Volts D.C. 230 Volts A.C.			575 Volts A.C.		
Amp.	Poles	Cat. No.	Wt. Lbs.	Price Each	Cat. No.	Wt. Lbs.	Price Each
30	2	**92251F**	20	**$21.50**	**92241F**	30	**$48.50**
30	3	**92351F**	25	**26.00**	**92341F**	35	**49.50**
30	4	**92451F**	37	**36.00**	**92441F**	42	**76.50**
60	2	**92252F**	30	**27.00**	**92242F**	30	**48.50**
60	3	**92352F**	40	**34.00**	**92342F**	35	**49.50**
60	4	**92452F**	47	**58.50**	**92442F**	42	**76.50**
100	2	**92253F**	40	**65.50**	**92243F**	40	**87.00**
100	3	**92353F**	55	**79.00**	**92343F**	50	**92.50**
100	4	**92453F**	70	**92.50**	**92443F**	80	**137.50**
200	2	**92254F**	50	**94.50**	**92244F**	50	**110.50**
200	3	**92354F**	85	**125.00**	**92344F**	95	**145.50**
200	4	**92454F**	140	**158.00**	**92444F**	145	**185.00**
400	2	**92255F**	131	**192.00**	**92245F**	111	**207.50**
400	3	**92355F**	190	**264.00**	**92345F**	160	**264.50**
400	4	**92455F**	210	**293.00**	**92445F**	190	**318.00**
600	2	**92256F**	140	**239.00**	----------	-----	---------
600	3	**92356F**	230	**320.00**	----------	-----	---------
600	4	**92456F**	325	**378.00**	----------	-----	---------

RAINTIGHT SWITCHES

Fusible—Single Throw



2-Wire S/N (1 Blade, 1 Fuse)
115 V. A.C./125 V. D.C.

Cat. No.	Amps.	Fuse	Hub Size	Price Each
97211-R	30	Plug	¾	**$4.50**
2-Pole, 230 V. A.C., 250 V. D.C.				
99211-R	30	Plug	¾	**4.80**
98251-R	30	Cart.	¾	**5.00**
3-Wire S/N (2 Blades, 2 Fuses) 125/250 V. A.C. or D.C., 230 V. A.C.				
97311-R	30	Plug	1	**5.10**
97312-R	60	Cart.	1¼	**10.90**
97313-R	100	Cart.	1½	**22.00**
97314-R	200	Cart.	2	**39.40**
3-Pole 230 V. A.C.				
96351-R	30	Cart.	1	**9.00**
96352-R	60	Cart.	1¼	**12.40**
96353-R	100	Cart.	1½	**24.00**
96354-R	200	Cart.	2	**41.50**

SQUARE D SAFETY SWITCHES

TYPE C RAINTIGHT SWITCHES

Single Throw—Quick Make—Quick Break

Standard finish, black enamel; aluminum finish at no extra charge when specified. 60-400 amp. switches have Solder-Solderless Lugs.

3-Wire Switching Neutral: These fusible switches can be furnished with unfused switching neutral by omitting the neutral fuse terminals and adding lugs for load connection to blade hinge post on neutral pole. Add "SWN" to standard 3-pole catalog numbers. Prices same as for 3-pole switches.

2-Pole, 230 Volts A.C.—250 Volts D.C.

Cat. No.	Amps.	H.P. A.C.	H.P. D.C.	Blades	Fuses	Price Each
45251R	30	2	5	..	..	**$11.00**
46252R	60	5	10	..	..	**27.50**
46253R	100	10	15	..	..	**42.00**
46254R	200	15	30	..	..	**52.00**
46255R	400	30	50	..	..	**136.00**
46256R	600	....	....	..	..	**186.00**

3-Wire S/N—230 Volts A.C.—250 Volts D.C.

Cat. No.	Amps.	H.P. A.C.	H.P. D.C.	Blades	Fuses	Price Each
47311R	30	3	....	2	2	**8.00**
47312R	60	7½	....	2	2	**15.20**
47313R	100	15	....	2	2	**26.50**
47314R	200	30	....	2	2	**41.50**
47315R	400	50	....	2	2	**102.50**
47316R	600	....	....	2	2	**207.00**

3-Pole, 230 Volts A.C.—250 Volts D.C.

Cat. No.	Amps.	H.P. A.C.	H.P. D.C.	Blades	Fuses	Price Each
46351R	30	3	....	..	..	**13.50**
46352R	60	7½	....	..	..	**17.00**
46353R	100	15	....	..	..	**32.50**
46354R	200	30	....	..	..	**46.50**

3-Pole, 575 Volts A.C.—With Arc Suppressors

Cat. No.	Amps.	H.P. A.C.	H.P. D.C.	Blades	Fuses	Price Each
46341R	30	7½	....	..	..	**16.00**
46342R	60	20	....	..	..	**21.00**
46343R	100	30	....	..	..	**40.00**
46344R	200	50	....	..	..	**58.50**

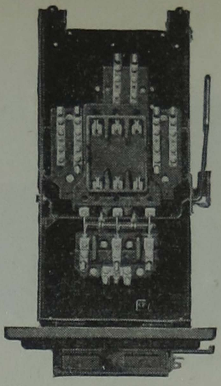
HUBS FOR OUTDOOR BOXES

Above switches can be furnished with conduit hubs at no extra cost.

For outdoor types of switches and meter boxes and socket meter troughs, designate hubs desired by letter, following catalog number, from table below.

Size In.	One in Top Suffix	Two in Top Suffix	One in Top 1 in Bottom Suffix	Single Nipples in Top Suffix
¾	C	P	J	W
1	D	Q	K	X
1¼	E	T	L	Y
1½	G	V	M	A
2	H	Z	N	B

SQUARE D METER SERVICE SWITCHES



No. 30413

ACCESSIBLE MAIN FUSES

Sequence: Switch-Fuse-Meter
Insulated Neutral

115 V., 115/230 V. A.C.

MAINS			Meter Test		Not Meter Test	
Amps.	Poles	Fused Poles	Cat. No.	With Endwall	Cat. No.	With Endwall
30	2	2C	**30251**	**$8.50**	**10251**	**$8.50**
	2	1C	**30271**	**7.00**	**10271**	**7.00**
	3	3C	***30391**	**22.50**	***10391**	**18.00**
	3	2C	**30371**	**8.50**	**10371**	**8.50**
	4	3C	***30411**	**29.00**	***10411**	**22.50**
60	2	2	**30252**	**17.50**	**10252**	**13.50**
	2	1	**30272**	**16.50**	**10272**	**13.50**
	3	3	***30392**	**29.50**	***10392**	**25.00**
	3	2	**30372**	**19.00**	**10372**	**13.50**
	3	2	***30312**	**19.00**	***10312**	**13.50**
	4	3	***30412**	**34.00**	***10412**	**26.00**
100	2	2	**30253**	**30.00**	**10253**	**22.00**
	2	1	**30273**	**30.00**	**10273**	**22.00**
	3	3	***30393**	**56.50**	***10393**	**40.00**
	3	2	**30373**	**32.50**	**10373**	**22.00**
	3	2	***30313**	**32.50**	***10313**	**22.00**
	4	3	***30413**	**67.50**	***10413**	**47.50**

*Switches with visible blades.

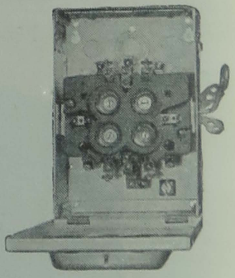
SEALABLE MAIN FUSES—METER TESTING

Switch-Fuse-Meter Sequence

With Service Equipment Labels.

All with Insulated Neutral.

Standard Finish: Aluminum.



No. 34311

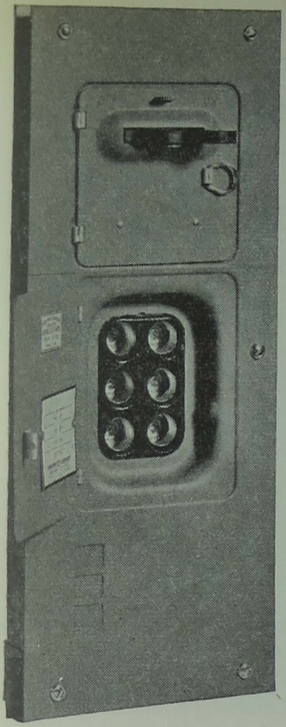
125 Volts and 125/250 Volts A.C. or D.C.

	Mains			Branches					
Cat. No.	Amps.	Poles	Blades	Fused Poles	No. Cir.	No. Fuses	Std. Pkg.	Wt. Lbs.	*Price With Endwall
32311	30	2	2	2-P	1	2	10	8	**$7.00**
34311	30	2	2	2-P	2	4	10	9	**9.00**
33211	30	2	1	1-P	2	2	10	8	**6.50**
32211	30	2	1	1-P	2	2	10	8	**6.50**
34211	30	2	1	1-P	2	4	10	9	**8.00**
34211	30	2	1	1-P	4	4	10	9	**8.00**
32311	30	3	2	2-P	2	2	10	8	**7.00**
32311	30	3	2	2-P	1	2	10	8	**7.00**
34311	30	3	2	2-P	2	4	10	9	**9.00**
34311	30	3	2	2-P	4	4	10	9	**9.00**

No. 33211 branch fuses in vertical position. No. 32211 branches in horizontal position.

*For 30-ampere switches without endwalls deduct **$0.50** each. For 60–100-ampere switches without endwalls deduct **$1.10** each.

SQUARE D SERVICE EQUIPMENT



No. ADF-636

ALL-N-ONE CABINETS

ADF and ADS Cabinets retain all the advantages of the Square D Panelette line, and in addition include a main line disconnect switch, of the Rotor Disc Type mounted at the top of the cabinet. These cabinets are for installations, involving meter sequence — meter — switch — fuse. Flush cabinets have mounting brackets on one side. One gang of three knockouts provided in trim for mounting Despard or new style Bryant wiring devices. Boxes code gauge galvanized steel. Standard finish grey enamel. All-N-One Combination Cabinets with 100 ampere (knife switch main), and with 60 ampere dead front fuse break and 30 ampere circuits can be furnished at additional **$12.00** list.

Flush or Surface Mounting Sequence—Meter-Switch-Fuse

Cat. No.		No. of	Wt.	Std.	Price Each	
Flush	Surface	Circuits	Lbs.	Pkg.	Flush	Surface
30 Ampere—2-Pole						
ADF322	ADS322	2-30A	13	5	**$7.00**	**$6.50**
ADF323	ADS323	3-30A	13	5	**7.50**	**7.00**
ADF324	ADS324	4-30A	13	5	**8.00**	**7.50**
†ADF325	ADS325	5-30A	13	5	**8.50**	**8.00**
30 Ampere—3-Pole						
ADF332	ADS332	2-30A	13	5	**7.50**	**7.00**
ADF333	ADS333	3-30A	13	5	**8.00**	**7.50**
ADF334	ADS334	4-30A	14	5	**8.50**	**8.00**
ADF335	ADS335	5-30A	17	5	**9.50**	**9.00**
ADF336	ADS336	6-30A	20	2	**10.00**	**9.50**
ADF338	ADS338	8-30A	24	2	**16.00**	**15.50**
†ADF3310	ADS3310	10-30A	29	2	**19.00**	**18.50**
60 Ampere—3-Pole						
ADF636	ADS636	6-60A	20	2	**13.50**	**13.00**
ADF638	ADS638	8-60A	24	2	**20.50**	**19.50**
ADF6310	ADS6310	10-60A	29	2	**24.50**	**23.50**
ADF6312	ADS6312	12-60A	31	2	**28.50**	**27.50**
100 Ampere—3-Pole						
ADF10314	ADS10314	14-100A	31	1	**47.50**	**47.50**
ADF10316	ADS10316	16-100A	31	1	**52.00**	**52.00**
ADF10318	ADS10318	18-100A	31	1	**55.00**	**55.00**
ADF10320	ADS10320	20-100A	31	1	**58.50**	**58.50**

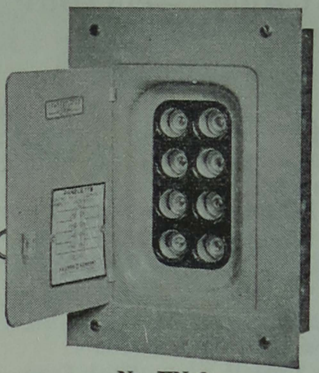
With 60 Ampere Dead Front Fuse Break and 30 Ampere Circuits

Cat. No.		No. of	Wt.	Std.	Price
Flush	Surface	Circuits	Lbs.	Pkg.	Each
60 Ampere—3-Pole					
ADF–060	ADS–060	1-60A	17	2	**$18.50**
ADF–260	ADS–260	2-30A—1-60A	29	2	**22.00**
ADF–360	ADS–360	3-30A—1-60A	29	2	**26.50**
ADF–460	ADS–460	4-30A—1-60A	29	2	**28.50**
ADF–560	ADS–560	5-30A—1-60A	31	2	**30.00**
ADF–660	ADS–660	6-30A—1-60A	31	2	**31.50**
100 Ampere—3-Pole					
ADF–860	ADS–860	8-30A—1-60A	45	1	**41.00**
ADF1060	ADS1060	10-30A—1-60A	45	1	**47.50**
ADF1260	ADS1260	12-30A—1-60A	45	1	**54.00**
ADF1460	ADS1460	14-30A—1-60A	50	1	**58.50**
ADF1660	ADS1660	16-30A—1-60A	50	1	**63.00**
ADF1860	ADS1860	18-30A—1-60A	50	1	**67.00**

†Not Underwriters Laboratories Listed.

SQUARE D SERVICE EQUIPMENT

FN AND SN TYPES PANELETTES



No. FN-8

Modern residence Panelettes available for flush and surface mounting. Cabinets have loom knockouts in back, concentric loom — ½ - ¾ - inch knockouts in top, bottom and sides. One 1½ - inch combination knockout in top and bottom (except 2 and 4 circuits).

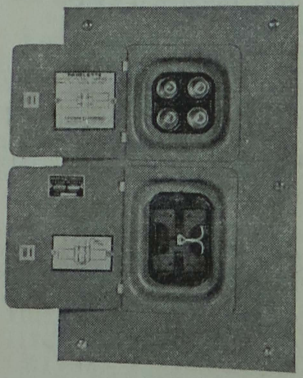
Above 8 circuits, two cutout units are used. Units connected by insulated bus providing single terminal for line connections. Boxes, code gauge galvanized steel. Standard finish grey enamel.

Narrow type without provision for bell or furnace transformer mounting. Flush type cabinets provided with mounting brackets on one side.

Cat. No.		No. of	Std.	List
Flush	Surface	Circuits	Pkg.	Price
FN- 2	**SN- 2**	2	10	**$2.20**
FN- 4	**SN- 4**	4	5	**2.90**
FN- 6	**SN- 6**	6	5	**4.85**
FN- 8	**SN- 8**	8	2	**7.30**
FN-10	**SN-10**	10	2	**10.70**
FN-12	**SN-12**	12	2	**14.55**

COMBINATION PANELETTES

With 60-Ampere Dead Front Fuse Break and 30-Ampere Circuits



No. FN-460

The 60-ampere fuse break is of the dead front, pullout type, and is intended for range and water heater circuits. This unit is interchangeable with the six circuit fuse block.

Narrow type without provision for bell or furnace transformer mounting.

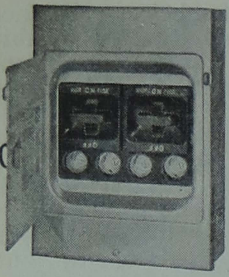
Flush type cabinets provided with mounting brackets on one side.

Cat. No.			Std.	List Price	
Flush	Surface	Circuits	Pkg.	Flush	Surface
FN-260	**SN-260**	2-30A–1-60A	2	**$11.50**	**$10.50**
FN-460	**SN-460**	4-30A–1-60A	2	**13.00**	**12.50**
FN-660	**SN-660**	6-30A–1-60A	2	**16.50**	**15.50**
FN-860	**SN-860**	8-30A–1-60A	1	**20.00**	**19.50**
FN-1060	**SN-1060**	10-30A–1-60A	1	**25.00**	**22.50**
FN-1260	**SN-1260**	12-30A–1-60A	1	**32.00**	**30.50**

SQUARE D SERVICE EQUIPMENT

SEQUENCE-METER-SWITCH-FUSE ACCESSIBLE MAINS

115 Volts and 115/230 Volts A.C.



No. 33582S

GROUP C—PULLOUT MAINS

Dead Main Fuses

Horizontal Fuse - breaks with swing - out interiors. Indoor type. Grounded neutral.

Standard Finish: All boxes and surface covers — aluminum; flush covers — gray enamel.

60 Ampere—Grounded Neutral
3-Pole—2 Blades—2 Fused Poles

Branch Fuses		End Walls	Surface Type		Flush Type	
30A.	60A.	▲	Cat. No.	Price Each	Cat. No.	Price Each
..	2	C	33182S	$9.50	33182F	$10.50
..	2	M	33182H	9.50	....	....
2	2	C	33382S	9.50	33382F	10.50
2	2	M	33382H	9.50	....	....
4	2	C	33582S	8.55	33582F	9.55
4	2	M	33582H	8.55	....	....
4	2	C	*33582PS	8.55	*33582PF	9.55
4	2	M	*33582PH	8.55	....	....
4	2	C	†33592	15.50	....	....
6	2	C	*33782PS	14.50	*33782PF	14.50
6	2	C	33782S	14.50	33782F	14.50
8	2	C	*33982PS	19.00	*33982PF	21.00
8	2	C	33982S	19.00	33982F	21.00

100 Ampere—Grounded Neutral
3-Pole—2 Blades—2 Fused Poles

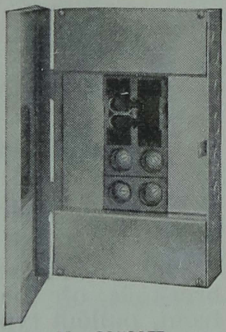
Branch Fuses		End Walls	Surface Type		Flush Type	
30A.	60A.	▲	Cat. No.	Price Each	Cat. No.	Price Each
4	2	C	*33583PS	10.00	*33583PF	11.00
4	2	M	*33583PH	10.00	....	....

GROUP C—PULLOUT MAINS

Dead Main Fuses

Horizontal Fuse-breaks. Indoor type.

Standard Finish: All boxes and surface covers — aluminum; flush covers — gray enamel.



No. 39532H

60 Amp.—Insulated Groundable Neutral
3-Pole—2 Blades—2 Fused Poles

Branch Fuses		End Walls	Surface Type		Flush Type	
30A.	60A.	▲	Cat. No.	Price Each	Cat. No.	Price Each
..	..	C	39112	$6.20	37122	$7.20
..	..	M	39132H	6.20	....	....
2	..	C	39312	8.20	37322	9.20
2	..	M	39332H	8.20	....	....
4	..	M	39532H	8.50	....	....
4	..	M	39532H	8.50	....	....
6	..	C	39712	12.80	37722	12.80
6	..	M	39732H	12.80	....	....
8	..	C	39912	17.50	37922	18.50
8	..	M	39932H	17.50	....	....
..	2	C	33182ZS	9.50	33182ZF	10.50
2	2	C	33382ZS	9.50	33382ZF	10.50
4	2	C	33582ZS	8.55	33582ZF	9.55

▲C—Conduit Endwall; M—Metering Endwall.

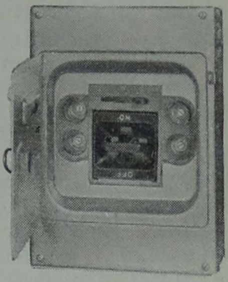
*60 Amp. Main and Range Fuses are wired in parallel, has 100 Amp. main lugs.

‡Similar to No. 33582 except will accommodate socket for Type S meter at top.

SQUARE D SERVICE EQUIPMENT

SEQUENCE-METER-SWITCH-FUSE ACCESSIBLE MAINS

115 Volts and 115/230 Volts A.C.



No. 32582

GROUP B4 FUSELESS MAIN SWITCHES

Standard Finish: All boxes and surface covers, aluminum; flush covers, gray enamel.

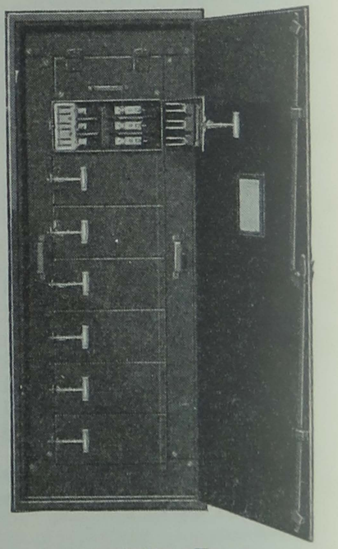
Furnished with conduit end walls.

Groundable Neutral

Mains			Branch Fuses		Surface		Flush	
Amp.	Poles	Blades	30A.	60A.	Cat. No.	Price Each	Cat. No.	Price Each
30	3	2	4	..	32482	$6.50	32472	$7.00
30	3	2	6	..	32682	7.50	32672	8.00
60	3	2	4	2	32582	8.30	32572	9.30
100	3	2	4	2	32583	9.75	32573	10.75

SQUARE D SAFLEX CONVERTIBLE PANEL

FOR FLUSH OR SURFACE MOUNTING



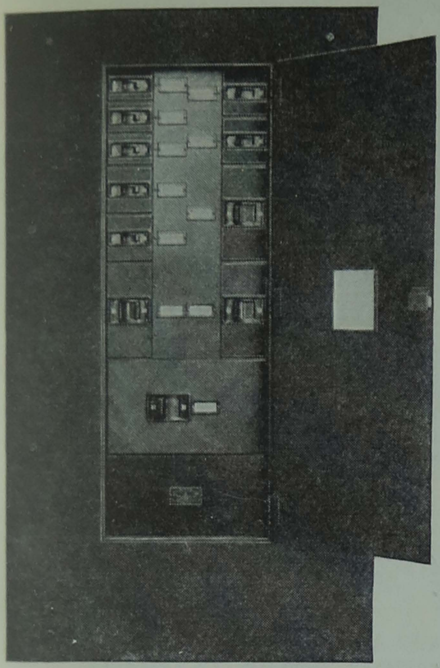
Single Row Type

The Saflex Panel design has been carried out with an idea of providing a maximum degree of safety and convenience within a moderate size. The panelboard is made up of interchangeable units mounted upon channels within a standard cabinet with busses mounted in an isolated bus compartment in the rear of the units. Circuits are provided for in individual units, with fuse mountings upon a fixed base so that circulation of air and the necessary ventilation of fuses and current carrying parts is provided for. A switch of high rupturing capacity is mounted within the unit. All switches have been subjected successfully to the standard Underwriters' test of 50 percent overload at 575 volts, regardless of circuit voltage upon which these switches are intended to be used.

All switches having been designed and tested for maximum voltage, the lower voltage units merely provide for variations in fuse dimensions and clearances.

Complete detailed information, and prices furnished upon request.

WESTINGHOUSE CONVERTIBLE PANELBOARDS
FOR POWER AND LIGHTING DISTRIBUTION CIRCUITS



Complete Convertible Panelboard with Main Breaker and One, Two and Three-Pole Breakers in Branch Circuits.

How to Select

Make a complete list of all circuits required. Then:

1 — If circuits are to feed motors, select the proper ratings of branch circuit breakers.

2 — For all other than motor circuits, determine exactly the branch circuit wire size. A breaker of the proper capacity must be used; not one with a capacity larger than the wire to be protected.

3 — Consider fully the actual load. If an extra-heavy wire is used to avoid voltage drop, a breaker frame larger than necessary to carry the actual load need not be used.

4 — Before a panelboard can be priced, it must be laid out. All circuits, all space necessary to even up, and any spaces for future circuits must be clearly indicated.

How to Price

1 — Use correct base price.

2 — Add price for each branch circuit.

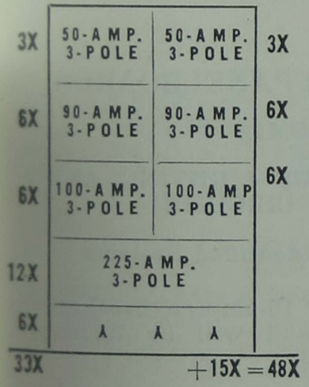
3 — Add price for each spare space left for a future circuit.

4 — Add price of neutral bar if required. For "Lugs in Mains" neutral bar is mounted at top (Example No. 2); for "Main Breaker," at bottom (Example No. 4).

5 — Add for feed-through lugs at both ends, if required.

6 — If total panel area is over 96X, panelboard must be made as two boards — price each separately. "X" means a unit of area 1⅜ inches high and one-half the panel wide.

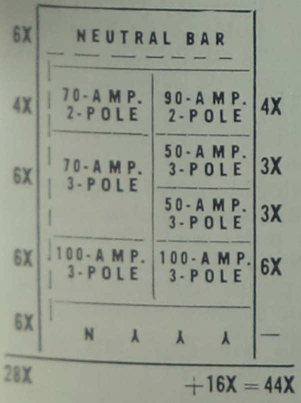
Example No. 1


3X
50-AMP. 3-POLE
50-AMP. 3-POLE
3X
6X
90-AMP. 3-POLE
90-AMP. 3-POLE
6X
6X
100-AMP. 3-POLE
100-AMP 3-POLE
6X
12X
225-AMP. 3-POLE
6X
33X
+15X = 48X

400-amp.—Base Price	$ 45.00
1 — 225-amp. 3-pole	123.00
2 — 100-amp. 3-pole at $49.00 each	98.00
2 — 90-amp. 3-pole at $49.00 each	98.00
2 — 50-amp. 3-pole at $25.00 each	50.00
Total List Price	$414.00

Total panel space: 48X or 33 inches high. Box dimensions: 46 inches high, 30 inches wide, 8 inches deep.

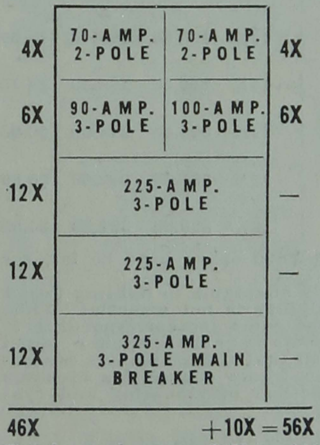
Example No. 2


6X
NEUTRAL BAR
4X
70-AMP. 2-POLE
90-AMP. 2-POLE
4X
6X
70-AMP. 3-POLE
50-AMP. 3-POLE
3X
50-AMP. 3-POLE
3X
6X
100-AMP. 3-POLE
100-AMP. 3-POLE
6X
6X
N
—
28X
+16X = 44X

225-amp. — Base Price	$ 35.00
2 — 100-amp. 3-pole at $49.00 each	98.00
1 — 70-amp. 3-pole	49.00
1 — 70-amp. 2-pole	37.00
1 — 90-amp. 2-pole	37.00
2 — 50-amp. 3-pole at $25.00 each	50.00
Solid neutral bus	12.00
Total List Price	$318.00

Total panel space: 44X or 33 inches high. Box dimensions: 46 inches high, 30 inches wide, 8 inches deep.

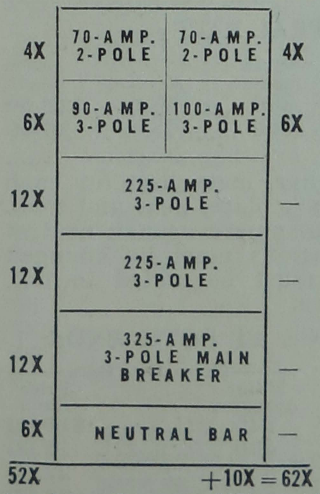
Example No. 3


4X
70-AMP. 2-POLE
70-AMP. 2-POLE
4X
6X
90-AMP. 3-POLE
100-AMP. 3-POLE
6X
12X
225-AMP. 3-POLE
—
12X
225-AMP. 3-POLE
—
12X
325-AMP. 3-POLE MAIN BREAKER
—
46X
+10X = 56X

400-amp. — Base Price	$ 60.00
325-amp. 3-pole main breaker	320.00
2 — 225-amp. 3-pole at $123.00 each	246.00
1 — 100-amp. 3-pole	49.00
1 — 90-amp. 3-pole	49.00
2— 70-amp. 2-pole at $37.00 each	74.00
Total List Price	$798.00

Total panel space: 56X or 38½ inches high. Box dimensions: 51½ inches high, 35 inches wide, 10 inches deep.

Example No. 4


4X
70-AMP. 2-POLE
70-AMP. 2-POLE
4X
6X
90-AMP. 3-POLE
100-AMP. 3-POLE
6X
12X
225-AMP. 3-POLE
—
12X
225-AMP. 3-POLE
—
12X
325-AMP. 3-POLE MAIN BREAKER
—
6X
NEUTRAL BAR
—
52X
+10X = 62X

400-amp.—Base Price	$ 60.00
325-amp. 3-pole main breaker	320.00
2 — 225-amp. 3-pole at $123.00 each	246.00
1 — 100-amp. 3-pole	49.00
1 — 90-amp. 3-pole	49.00
2 — 70-amp. 2-pole at $37.00 each	74.00
Solid neutral bus	16.00
Total List Price	$814.00

Total panel space: 62X or 44 inches high. Box dimensions: 57 inches high, 35 inches wide, 10 inches deep.

CONVERTIBLE PANELBOARDS
FOR POWER AND LIGHTING DISTRIBUTION CIRCUITS (Continued)

BASE PRICES

Box W. In.	Box Dp. In.	Gutter W. In.	Largest Breaker Allowed	Capacity of Mains 225-Amp.	400-Amp.	600-Amp.	800-Amp.	1000-Amp.
30	8	5	225-A.	$35.	$45.	$60.	$75.	$95.
35	10	6½	400-A.	......	60.	75.	90.	110.
40	10	9	600-A.	......	....	90.	105.	125.

Includes: Main lugs (either 2, 3, or 4-wire), top and bottom gutters, with respective sections of bus, box and front to circuit edge. Remaining equipment for complete panelboard included in Branch Circuit Prices listing.

BRANCH CIRCUIT PRICES

Branch Circuits Amp. Cap.	Branch Circuits No. Poles	Size of Branch Circuit Breakers Frame Size	Size of Branch Circuit Breakers Area	Service Volt. 250 V. A-C 125 V. D-C Price Each	Service Volt. 600 V. A-C 250 V. D-C Price Each	Space Only Price Each†
15, 20, 25A	1	These Circuits are Semi-Convertible, See Note‡	1X	$ 7.00	....	$ 3.00
35, 50A	1		1X	8.00	....	3.00
15, 20, 25A	2		2X	13.00	....	4.00
35, 50A	2		2X	15.00	....	4.00
15, 20, 25A	3		3X	19.00	....	6.00
35, 50A	3		3X	22.00	....	6.00
15, 20, 25A	2	50-Amp. 2-Pole	2X	16.00	$ 26.00	4.00
35, 50A	2		2X	18.00	28.00	4.00
15, 20, 25A	3	50-Amp. 3-Pole	3X	22.00	33.00	6.00
35, 50A	3		3X	25.00	36.00	6.00
70, 90, 100A	2	100-Amp. 2-Pole	4X	37.00	45.00	8.00
70, 90, 100A	3	100-Amp. 3-Pole	6X	49.00	60.00	12.00
125, 150, 175, 200, 225A	2	225-Amp. 2-Pole	8X	99.00	116.00	14.00
125, 150, 175, 200, 225A	3	225-Amp. 3-Pole	12X	123.00	159.00	18.00
250, 275, 300, 325, 350, 400A	2	400-Amp. 2-Pole	12X	249.00	266.00	25.00
250, 275, 300, 325, 350, 400A	3	400-Amp. 3-Pole	12X	320.00	344.00	30.00
450, 500, 550, 600A	2	600-Amp. 2-Pole	12X	285.00	302.00	25.00
450, 500, 550, 600A	3	600-Amp. 3-Pole	12X	369.00	391.00	30.00

†Space only price to be used when space is to be left for future circuits.

‡These circuits are particularly adaptable to lighting feeder panelboards where full convertibility is not essential. While the width of the breakers is the same for corresponding 2- and 3-pole regular 50-ampere convertible power panel breakers, the construction is such that these breakers are not interchangeable with 50-ampere frame convertible breakers without modifications in the method of mounting and connecting breakers to bus.

"X" UNITS FOR MAIN LUGS ONLY

400 Amperes or Less	6X
Over 400 Amperes	10X

SOLID NEUTRAL BARS

Ampere Capacity	Area	Price Each	Ampere Capacity	Area	Price Each
225	6X	$12.00	800	6X*	$28.00
400	6X	16.00	1000	6X*	36.00
600	6X*	20.00	....		....

Price includes neutral bar, main lugs for each branch circuit, part of back plate, box, and trim.

***Important:** When 600-ampere branch neutral lugs are used, 6X dimensions must be changed to 10X and 5½ inches must be added to box height indicated for X area.

FEED THROUGH LUGS AT BOTH ENDS

Two Bus Bars Mains Amperes	Two Bus Bars Price Each	Three Bus Bars Mains Amperes	Three Bus Bars Price Each
225	$ 8.00	225	$10.00
400	11.00	400	13.00
600	16.00	600	22.00
800	22.00	800	28.00
1000	28.00	1000	34.00

CONVERTIBLE PANELBOARDS
FOR POWER AND LIGHTING DISTRIBUTION CIRCUITS (Continued)

Panel and Box Dimension Data

All dimensions are **inside**, in inches.

Total "X" Panel Space Obtained from Diagram	Panel Only Height Inches	Main Bus Capacity 100, 200 and 400 Ampere Box Height Inches	Main Bus Capacity 600, 800 and 1000 Ampere Box Height Inches
24X	16½	29½	35
25X to 32X	22	35	40½
33X to 40X	27½	40½	46
41X to 48X	33	46	51½
49X to 56X	38½	51½	57
57X to 64X	44	57	62½
65X to 72X	49½	62½	68
73X to 80X	55	68	73½
81X to 88X	60½	73½	79
89X to 96X	66	79	84½

Largest Breaker in Panel	Box Width	Box Depth
For 50, 100 and 225-Ampere Frame Size 2- and 3-Pole Breakers	30 Inches	8 Inches
For 226 to 400-Ampere, 2- and 3-Pole Breakers — With or Without 50, 100 and 225-Ampere Frame Sizes	35 Inches	10 Inches
For 401 to 600-Ampere, 2- and 3-Pole Breakers — With or Without 50, 100, 225 or 400-Ampere Frame Sizes	40 Inches	10 Inches

MULTI-BREAKER PANELBOARDS
TYPE NM1B
FOR PROTECTION OF LIGHTING AND APPLIANCE CIRCUITS
For Solid Neutral Identified Systems

Important—Single-pole 15-ampere breakers in branches are standard and will be furnished, unless otherwise specified.

Twenty, 25, 35 or 50-ampere panelboards at same price, except see limitations on number of 35 and 50-ampere breakers, in following paragraph:

These panels may contain from 2 to 18 double-pole circuits. No panel may contain more than 4 poles of 35 or 50-ampere capacity which might be in the form of 2 double-pole 35 or 50-ampere circuits, four 35 or 50-ampere single-pole circuits, one 35 or 50-ampere double-pole circuit, or two 35 or 50-ampere single-pole circuits. For panelboards involving more 35 or 50-ampere poles refer to Type NMM.

For panels having all double-pole breakers or combinations of single and double poles, convert to total number of single poles and obtain price of panel, then add **$1.00** list for each double pole substituted for two single poles. Specify whether panelboard is to be flush or surface mounted.

Note: These panelboards use Type MB Multi-Breaker, and this unit encloses from 1 to 4 poles, all of same polarity. Main bus connection on side of breaker. Cannot be used for special panelboard arrangements.

MULTI-BREAKER PANELBOARDS
TYPE NM1B—(Continued)

FOR PROTECTION OF LIGHTING AND APPLIANCE CIRCUITS

For Solid Neutral Identified Systems

Lugs in Mains

No. of Circuits	3-Wire Mains Single Phase 115/230 Volts A-C. 2-Wire Branches Single-Pole 115 Volts—15-Amp.		4-Wire Mains Three Phase 115/230 Volts A-C. 2-Wire Branches Single-Pole 115 Volts—15-Amp.	
	Cat. No.	Price Each	Cat. No.	Price Each
	50-Ampere Main			
4	**NM1B04-3L**	**$38.00**	....	....
6	**NM1B06-3L**	**42.00**	**NM1B06-4L**	**$46.00**
8	**NM1B08-3L**	**48.00**	**NM1B08-4L**	**52.00**
10	**NM1B10-3L**	**54.00**	**NM1B10-4L**	**58.00**
12	....	....	**NM1B12-4L**	**66.00**
14	....	....	**NM1B14-4L**	**72.00**
	100-Ampere Main			
12	**NM1B12-3L**	**62.00**	....	....
14	**NM1B14-3L**	**68.00**	....	....
16	**NM1B16-3L**	**74.00**	**NM1B16-4L**	**78.00**
18	**NM1B18-3L**	**80.00**	**NM1B18-4L**	**84.00**
20	**NM1B20-3L**	**84.00**	**NM1B20-4L**	**88.00**
22	**NM1B22-3L**	**90.00**	**NM1B22-4L**	**94.00**
24	**NM1B24-3L**	**94.00**	**NM1B24-4L**	**100.00**
26	**NM1B26-3L**	**100.00**	**NM1B26-4L**	**106.00**
28	**NM1B28-3L**	**104.00**	**NM1B28-4L**	**110.00**
30	**NM1B30-3L**	**110.00**	**NM1B30-4L**	**116.00**
32	**NM1B32-3L**	**114.00**	**NM1B32-4L**	**120.00**
34	....	....	**NM1B34-4L**	**140.00**
36	....	....	**NM1B36-4L**	**146.00**
38	....	....	**NM1B38-4L**	**152.00**
40	....	....	**NM1B40-4L**	**156.00**
42	....	....	**NM1B42-4L**	**160.00**
	200-Ampere Main			
34	**NM1B34-3L**	**136.00**	....	....
36	**NM1B36-3L**	**140.00**	....	....
38	**NM1B38-3L**	**146.00**	....	....
40	**NM1B40-3L**	**150.00**	....	....
42	**NM1B42-3L**	**156.00**	....	....

Breaker in Mains

No. of Circuits	Cat. No.	Price Each	Cat. No.	Price Each
	50-Ampere Main			
4	**NM1B04-3AB**	**$ 50.00**	....	....
6	**NM1B06-3AB**	**54.00**	**NM1B06-4AB**	**$ 64.00**
8	**NM1B08-3AB**	**60.00**	**NM1B08-4AB**	**70.00**
10	**NM1B10-3AB**	**66.00**	**NM1B10-4AB**	**76.00**
12	....	....	**NM1B12-4AB**	**84.00**
14	....	....	**NM1B14-4AB**	**90.00**
	100-Ampere Main			
12	**NM1B12-3AB**	**97.00**	....	....
14	**NM1B14-3AB**	**103.00**	....	....
16	**NM1B16-3AB**	**109.00**	**NM1B16-4AB**	**120.00**
18	**NM1B18-3AB**	**115.00**	**NM1B18-4AB**	**126.00**
20	**NM1B20-3AB**	**119.00**	**NM1B20-4AB**	**130.00**
22	**NM1B22-3AB**	**125.00**	**NM1B22-4AB**	**136.00**
24	**NM1B24-3AB**	**129.00**	**NM1B24-4AB**	**142.00**
26	**NM1B26-3AB**	**135.00**	**NM1B26-4AB**	**148.00**
28	**NM1B28-3AB**	**139.00**	**NM1B28-4AB**	**152.00**
30	**NM1B30-3AB**	**145.00**	**NM1B30-4AB**	**158.00**
32	**NM1B32-3AB**	**149.00**	**NM1B32-4AB**	**162.00**
34	....	....	**NM1B34-4AB**	**182.00**
36	....	....	**NM1B36-4AB**	**188.00**
38	....	....	**NM1B38-4AB**	**194.00**
40	....	....	**NM1B40-4AB**	**198.00**
42	....	....	**NM1B42-4AB**	**202.00**
	200-Ampere Main			
34	**NM1B34-3AB**	**232.00**	....	....
36	**NM1B36-3AB**	**236.00**	....	....
38	**NM1B38-3AB**	**242.00**	....	....
40	**NM1B40-3AB**	**246.00**	....	....
42	**NM1B42-3AB**	**252.00**	....	....

MULTI-BREAKER PANELBOARDS

TYPE NMM

FOR PROTECTION OF LIGHTING AND APPLIANCE CIRCUITS

For Solid Neutral Identified Systems

Important — List prices are based on 15-ampere breakers. The 20, 25, 35 or 50-ampere breakers can be supplied at same price unless increased main bus capacity is required which should be added from table below.

For each 2-pole breaker in place of 2 single-pole, add $1.00 to list price. Two-pole breakers independent trip.

Four-wire main panelboards are for use on 115/230-volt, star connected, 3-phase, 4-wire systems. Specify whether panelboard is to be flush or surface mounted.

Note: These panelboards use Type M Multi-Breakers. Both poles are electrically and mechanically independent of each other, allowing more flexibility for special panelboard arrangements.

How to Figure Cost of Increased Mains Capacity

Mains increased from:	NM1B-3L NMM-3L	NM1B-4L NMM-4L	Main Breaker (2-Pole) NM1B-3AB NMM-3AB	Main Breaker (3-Pole) NM1B-4AB NMM-4AB
50A. to 100A.	**$4.00**	**$5.00**	**$23.00**	**$ 24.00**
50A. to 200A.	**6.00**	**8.00**	**84.00**	**101.00**
100A. to 200A.	**5.00**	**7.00**	**61.00**	**77.00**

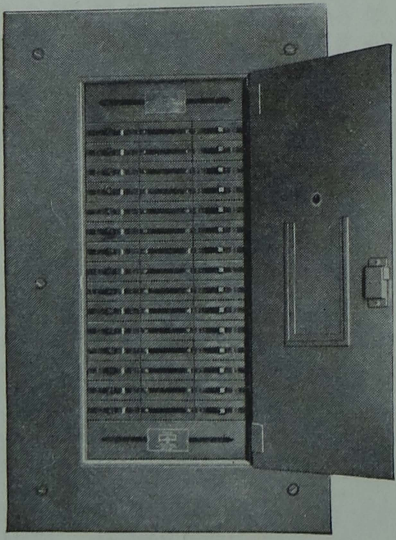
Lugs in Mains

No. Circuits	3-Wire Mains Single Phase 115/230 Volts A-C. 2-Wire Branches Single-Pole 115 Volts — 15-Amp.		4-Wire Mains Three Phase 115/230 Volts A-C. 2-Wire Branches Single-Pole 115 Volts — 15-Amp.	
	Cat. No.	Price Each	Cat. No.	Price Each
	50-Ampere Main			
4	**NMM04-3L**	**$ 44.00**	....	....
6	**NMM06-3L**	**51.00**	**NMM06-4L**	**$ 51.00**
8	**NMM08-3L**	**58.00**	**NMM08-4L**	**58.00**
10	**NMM10-3L**	**65.00**	**NMM10-4L**	**65.00**
12	....	....	**NMM12-4L**	**72.00**
14	....	....	**NMM14-4L**	**79.00**
	100-Ampere Main			
12	**NMM12-3L**	**72.00**	....	....
14	**NMM14-3L**	**79.00**	....	....
16	**NMM16-3L**	**86.00**	**NMM16-4L**	**86.00**
18	**NMM18-3L**	**93.00**	**NMM18-4L**	**93.00**
20	**NMM20-3L**	**100.00**	**NMM20-4L**	**100.00**
22	**NMM22-3L**	**107.00**	**NMM22-4L**	**107.00**
24	**NMM24-3L**	**114.00**	**NMM24-4L**	**114.00**
26	**NMM26-3L**	**121.00**	**NMM26-4L**	**121.00**
28	**NMM28-3L**	**128.00**	**NMM28-4L**	**128.00**
30	**NMM30-3L**	**135.00**	**NMM30-4L**	**135.00**
32	**NMM32-3L**	**142.00**	**NMM32-4L**	**142.00**
34	....	....	**NMM34-4L**	**149.00**
36	....	....	**NMM36-4L**	**156.00**
38	....	....	**NMM38-4L**	**163.00**
40	....	....	**NMM40-4L**	**170.00**
42	....	....	**NMM42-4L**	**177.00**
	200-Ampere Main			
34	**NMM34-3L**	**149.00**	....	....
36	**NMM36-3L**	**156.00**	....	....
38	**NMM38-3L**	**163.00**	....	....
40	**NMM40-3L**	**170.00**	....	....
42	**NMM42-3L**	**177.00**	....	....

MULTI-BREAKER PANELBOARDS
TYPE NMM—(Continued)
FOR PROTECTION OF LIGHTING AND APPLIANCE CIRCUITS
For Solid Neutral Identified Systems

No. Circuits	3-Wire Mains Single Phase 115/230 Volts A-C. 2-Wire Branches Single-Pole 115 Volts — 15-Amp.		4-Wire Mains Three Phase 115/230 Volts A-C. 2-Wire Branches Single-Pole 115 Volts — 15-Amp.	
	Cat. No.	Price Each	Cat. No.	Price Each
Breaker in Mains				
50-Ampere Main				
4	NMM04-3AB	$56.00	....	....
6	NMM06-3AB	63.00	NMM06-4AB	$69.00
8	NMM08-3AB	70.00	NMM08-4AB	76.00
10	NMM10-3AB	77.00	NMM10-4AB	83.00
12	....	....	NMM12-4AB	90.00
14	....	....	NMM14-4AB	97.00
100-Ampere Main				
12	NMM12-3AB	107.00	....	....
14	NMM14-3AB	114.00	....	....
16	NMM16-3AB	121.00	NMM16-4AB	128.00
18	NMM18-3AB	128.00	NMM18-4AB	135.00
20	NMM20-3AB	135.00	NMM20-4AB	142.00
22	NMM22-3AB	142.00	NMM22-4AB	149.00
24	NMM24-3AB	149.00	NMM24-4AB	156.00
26	NMM26-3AB	156.00	NMM26-4AB	163.00
28	NMM28-3AB	163.00	NMM28-4AB	170.00
30	NMM30-3AB	170.00	NMM30-4AB	177.00
32	NMM32-3AB	177.00	NMM32-4AB	184.00
34	....	....	NMM34-4AB	191.00
36	....	....	NMM36-4AB	198.00
38	....	....	NMM38-4AB	205.00
40	....	....	NMM40-4AB	212.00
42	....	....	NMM42-4AB	219.00
200-Ampere Main				
34	NMM34-3AB	245.00	....	....
36	NMM36-3AB	252.00	....	....
38	NMM38-3AB	259.00	....	....
40	NMM40-3AB	266.00	....	....
42	NMM42-3AB	273.00	....	....

CIRCUIT-BREAKER PANELBOARDS
FOR LIGHTING AND APPLIANCE CIRCUITS
For Solid Neutral Identified Systems
TYPE NA1B



Cat. No. NA1B30–3L

Important—List Prices are based on supplying 15-ampere breakers. The 20 and 25-ampere breakers can be supplied at the same price except increased main bus-bar capacity may be required.

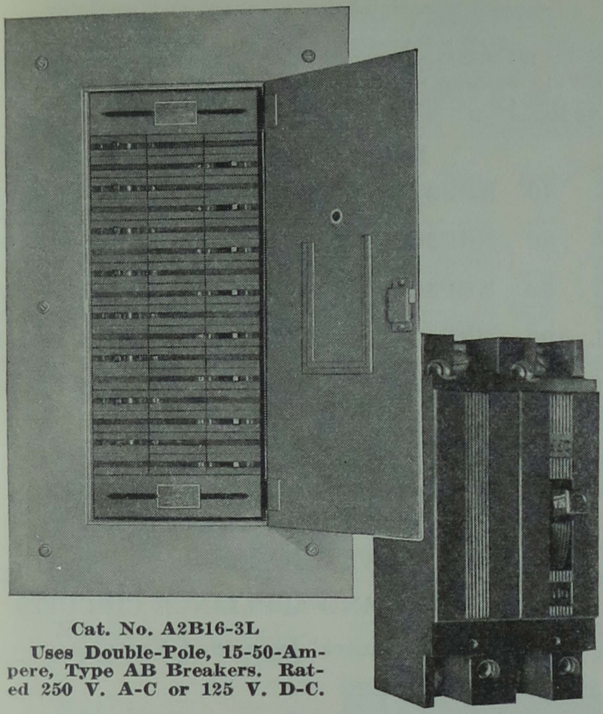
The 35 and 50-ampere breakers can be supplied at $1.00 list extra per circuit plus increased main bus-bar if required. For prices of increasing mains capacity and for subfeeds, see table on a following page. Specify whether panelboard is to be flush or surface mounted.

Note: These panelboards use the single-pole AB Breaker: quick-make, quick-break and rated at 250 volts A-C. or 125 volts D-C.

CIRCUIT-BREAKER PANELBOARDS
FOR LIGHTING AND APPLIANCE CIRCUITS
For Solid Neutral Identified Systems
TYPE NA1B (Continued)

No. Circuits	3-Wire Mains Single Phase 115/230 V. A-C. or D-C. 2-Wire Branches Single-Pole 115 Volts—15-Amp.		4-Wire Mains Three Phase 115/230 V. A-C. 2-Wire Branches Single-Pole 115 Volts—15-Amp.	
	Cat. No.	Price Each	Cat. No.	Price Each
Lugs in Mains				
50-Ampere Main				
4	NA1B04–3L	$52.00	NA1B04–4L	$52.00
6	NA1B06–3L	63.00	NA1B06–4L	63.00
8	NA1B08–3L	74.00	NA1B08–4L	74.00
10	NA1B10–3L	85.00	NA1B10–4L	85.00
12	....	....	NA1B12–4L	96.00
14	....	....	NA1B14–4L	107.00
100-Ampere Main				
12	NA1B12–3L	96.00	....	....
14	NA1B14–3L	107.00	....	....
16	NA1B16–3L	118.00	NA1B16–4L	118.00
18	NA1B18–3L	129.00	NA1B18–4L	129.00
20	NA1B20–3L	140.00	NA1B20–4L	140.00
22	NA1B22–3L	151.00	NA1B22–4L	151.00
24	NA1B24–3L	162.00	NA1B24–4L	162.00
26	NA1B26–3L	173.00	NA1B26–4L	173.00
28	NA1B28–3L	184.00	NA1B28–4L	184.00
30	NA1B30–3L	195.00	NA1B30–4L	195.00
32	NA1B32–3L	206.00	NA1B32–4L	206.00
34	....	....	NA1B34–4L	217.00
36	....	....	NA1B36–4L	228.00
38	....	....	NA1B38–4L	239.00
40	....	....	NA1B40–4L	250.00
42	....	....	NA1B42–4L	261.00
200-Ampere Main				
34	NA1B34–3L	$217.00	....	....
36	NA1B36–3L	228.00	....	....
38	NA1B38–3L	239.00	....	....
40	NA1B40–3L	250.00	....	....
42	NA1B42–3L	261.00	....	....
Type AB Breaker in Mains				
50-Ampere Main				
4	NA1B04–3AB	68.00	NA1B04–4AB	$75.00
6	NA1B06–3AB	79.00	NA1B06–4AB	86.00
8	NA1B08–3AB	90.00	NA1B08–4AB	97.00
10	NA1B10–3AB	101.00	NA1B10–4AB	108.00
12	....	....	NA1B12–4AB	119.00
14	....	....	NA1B14–4AB	130.00
100-Ampere Main				
12	NA1B12–3AB	134.00	....	....
14	NA1B14–3AB	145.00	....	....
16	NA1B16–3AB	156.00	NA1B16–4AB	168.00
18	NA1B18–3AB	167.00	NA1B18–4AB	179.00
20	NA1B20–3AB	178.00	NA1B20–4AB	190.00
22	NA1B22–3AB	189.00	NA1B22–4AB	201.00
24	NA1B24–3AB	200.00	NA1B24–4AB	212.00
26	NA1B26–3AB	211.00	NA1B26–4AB	223.00
28	NA1B28–3AB	222.00	NA1B28–4AB	234.00
30	NA1B30–3AB	233.00	NA1B30–4AB	245.00
32	NA1B32–3AB	244.00	NA1B32–4AB	256.00
34	....	....	NA1B34–4AB	267.00
36	....	....	NA1B36–4AB	278.00
38	....	....	NA1B38–4AB	289.00
40	....	....	NA1B40–4AB	300.00
42	....	....	NA1B42–4AB	311.00
200-Ampere Main				
34	NA1B34–3AB	317.00	....	....
36	NA1B36–3AB	328.00	....	....
38	NA1B38–3AB	339.00	....	....
40	NA1B40–3AB	350.00	....	....
42	NA1B42–3AB	361.00	....	....

CIRCUIT-BREAKER PANELBOARDS
FOR LIGHTING AND APPLIANCE CIRCUITS
For Protected Neutral Unidentified Systems



Cat. No. A2B16-3L
Uses Double-Pole, 15-50-Ampere, Type AB Breakers. Rated 250 V. A-C or 125 V. D-C.

Important — List prices are based on supplying 15-ampere breakers. The 20 and 25-ampere breakers can be supplied at same price except increased main may be required. Get price additions from table on a following page. For 35 and 50-ampere breakers, add $2.00 per circuit to list price plus price of increased main busbar if required. For prices of increasing mains capacity and for subfeeds, see table on a following page. For 230-volt A-C. service, refer to Types A2B-2H and A2B-3H Panelboard listings.

For 250-volt D-C. service, refer to 600-volt convertible panelboard listing. Specify whether panelboard is to be flush or surface mounted.

TYPES A2B-3 AND A2B-2

No. Circuits	3-Wire Mains Single Phase 115/230 Volts A-C. or 115/230 Volts D-C. **2-Wire Branches** Two-Pole 115 Volts — 15-Amp.		2-Wire Mains 115 Volts A-C. or D-C. **2-Wire Branches** Two-Pole 115 Volts — 15-Amp.	
	Cat. No.	Price Each	Cat. No.	Price Each
Lugs in Mains				
50-Ampere Main				
4	A2B04-3L	$ 69.00	A2B04-2L	$ 69.00
6	A2B06-3L	91.00		
8	A2B08-3L	113.00		
10	A2B10-3L	135.00		
100-Ampere Main				
6			A2B06-2AB	91.00
8			A2B08-2AB	113.00
10			A2B10-2AB	135.00
12	A2B12-3L	157.00		
14	A2B14-3L	179.00		
16	A2B16-3L	201.00		
18	A2B18-3L	223.00		
20	A2B20-3L	245.00		

CIRCUIT-BREAKER PANELBOARDS
FOR LIGHTING AND APPLIANCE CIRCUITS
For Protected Neutral Unidentified Systems
TYPES A2B-3 AND A2B-2 (Continued)

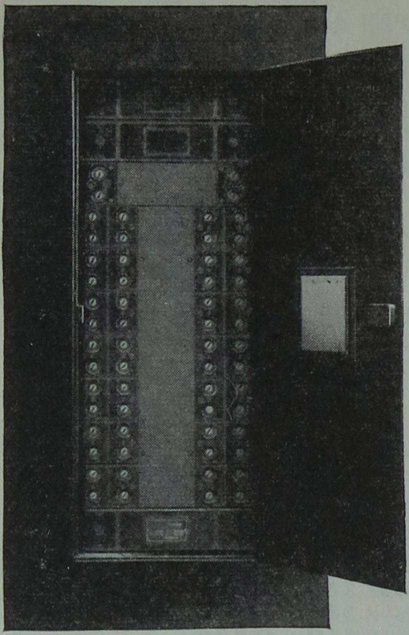
No. Circuits	3-Wire Mains Single Phase 115/230 Volts A-C. or 115/230 Volts D-C. **2-Wire Branches** Two-Pole 115 Volts — 15-Amp.		2-Wire Mains 115 Volts A-C. or D-C. **2-Wire Branches** Two-Pole 115 Volts — 15-Amp.	
	Cat. No.	Price Each	Cat. No.	Price Each
Lugs in Mains				
200-Ampere Main				
12			A2B12-2L	$157.00
14			A2B14-2L	179.00
16			A2B16-2L	201.00
18			A2B18-2L	223.00
20			A2B20-2L	245.00
Type AB Breaker in Mains				
50-Ampere Main				
4	A2B04-3AB	$ 92.00	A2B04-2AB	85.00
6	A2B06-3AB	114.00		
8	A2B08-3AB	136.00		
10	A2B10-3AB	158.00		
100-Ampere Main				
6			A2B06-2AB	129.00
8			A2B08-2AB	151.00
10			A2B10-2AB	173.00
12	A2B12-3AB	207.00		
14	A2B14-3AB	229.00		
16	A2B16-3AB	251.00		
18	A2B18-3AB	273.00		
20	A2B20-3AB	295.00		
200-Ampere Main				
12			A2B12-2AB	257.00
14			A2B14-2AB	279.00
16			A2B16-2AB	301.00
18			A2B18-2AB	323.00
20			A2B20-2AB	345.00

For 3-Wire Solid Neutral Systems
TYPE NA2B

No. Circuits	3-Wire Mains Single Phase 115/230 Volts A-C. or 115/230 Volts D-C. **Lugs In Mains**		3-Wire Branches Two-Pole 115/230 Volts A-C. or 115/230 Volts D-C. **AB Breaker In Mains**	
	Cat. No.	Price Each	Cat. No.	Price Each
50-Ampere Main				
4	NA2B04-3L	$ 74.00	NA2B04-3AB	$ 90.00
100-Ampere Main				
6	NA2B06-3L	96.00	NA2B06-3AB	134.00
8	NA2B08-3L	118.00	NA2B08-3AB	156.00
10	NA2B10-3L	140.00	NA2B10-3AB	178.00
200-Ampere Main				
12	NA2B12-3L	162.00	NA2B12-3AB	262.00
14	NA2B14-3L	184.00	NA2B14-3AB	284.00
16	NA2B16-3L	206.00	NA2B16-3AB	306.00
18	NA2B18-3L	228.00	NA2B18-3AB	328.00
20	NA2B20-3L	250.00	NA2B20-3AB	350.00

PLUG-FUSE LIGHTING PANELBOARDS

FOR LIGHTING AND APPLIANCE CIRCUITS



Type N1P

No. Circuits	TYPE N1P-3 3-Wire Mains 125/250 Volts, S.N. 2-Wire Branches 125 Volts, Single-Pole Fuses Cat. No.	Price Each	TYPE N1P-4 4-Wire Mains 3-Ph. 125/250 V. 2-Wire Branches 125 Volts, Single-Pole Fuses Cat. No.	Price Each
	Lugs in Mains			
	100-Amp. Main		60-Amp. Main	
16	N1P16-3L	$ 56.00	N1P16-4L	$ 60.00
24	N1P24-3L	66.00	N1P24-4L	70.00
------	----------------------	-------------	100-Amp. Main	
32	N1P32-3L	76.00	N1P32-4L	80.00
	200-Amp. Main		----------------------	-------------
40	N1P40-3L	106.00	N1P40-4L	108.00
	Fuses in Mains			
	60-Amp. Main		30-Amp. Main	
8	N1P08-3F	60.00	N1P08-4F	70.00
	100-Amp. Main		60-Amp. Main	
16	N1P16-3F	80.00	N1P16-4F	84.00
24	N1P24-3F	90.00	N1P24-4F	94.00
------	----------------------	-------------	100-Amp. Main	
32	N1P32-3F	105.00	N1P32-4F	110.00
	200-Amp. Main		----------------------	-------------
40	N1P40-3F	136.00	N1P40-4F	140.00
	Fusible Brush Switches in Mains			
	60-Amp. Main		30-Amp. Main	
8	N1P08-3FS	74.00	N1P08-4FS	82.00
	100-Amp. Main		60-Amp. Main	
16	N1P16-3FS	95.00	N1P16-4FS	104.00
24	N1P24-3FS	108.00	N1P24-4FS	120.00
------	----------------------	-------------	100-Amp. Main	
32	N1P32-3FS	120.00	N1P32-4FS	132.00
	200-Amp. Main		----------------------	-------------
40	N1P40-3FS	166.00	N1P40-4FS	176.00

PLUG-FUSE LIGHTING PANELBOARDS

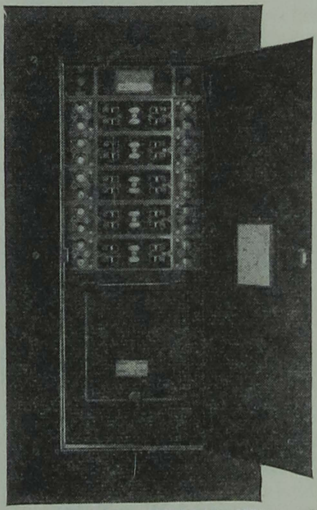
FOR LIGHTING AND APPLIANCE CIRCUITS

	TYPE NR3G 3-Wire Mains 125/250 V., S.N. 2-Wire Branches 125 Volts — Single-Pole 30-Amp. S-P Fuses			TYPE R3G 3-Wire Mains 125/250 V., S.N. 2-Wire Branches 125 Volts — Double-Pole 30-Amp. D-P Fuses		
No. Circuits	Amp. Mains	Cat. No.	Price Each	Amp. Mains	Cat. No.	Price Each
		Mains — Lugs Only				
4	30	NRP3G04	$16.00	30	RP3G04	$16.00
6	----	----------------	--------	60	RP3G06	22.00
8	60	NRP3G08	20.00	60	RP3G08	26.00
10	----	----------------	--------	60	RP3G10	30.00
12	60	NRP3G12	24.00	60	RP3G12	34.00
14	----	----------------	--------	100	RP3G14	40.00
16	100	NRP3G16	30.00	100	RP3G16	44.00
18	----	----------------	--------	100	RP3G18	50.00
20	100	NRP3G20	34.00	100	RP3G20	54.00
24	100	----------------	42.00	----	----------------	--------
28	100	----------------	48.00	----	----------------	--------
32	100	----------------	54.00	----	----------------	--------

TOGGLE SWITCH-AND-FUSE PANELBOARDS

FOR LIGHTING AND APPLIANCE CIRCUITS

For Solid Neutral Identified Systems



Cat. No. NT1P20-3FS

Catalog Numbers cover panels with Plug Fusible Branches. Cartridge Fusible are available at same price. Simply change "P" in Catalog Number to "C."

Cartridge Fusible Panelboards with single door are not safety type.

For increased mains, sub-feeds, etc., refer to table on a following page.

TYPES NTP* — NTC†

3-Wire Mains — 125/250 Volts A-C. or D-C.
2-Wire Branches — Single-Pole — 125 Volts
30-Amp. Toggle Switch and Fuse

No. Circuits	Single Door Cat. No.	Price Each	Door-In-Door Cat. No.	Price Each
	Lugs in Mains			
	30-Ampere Main			
4	NT1P04-3L	$ 34.00	NT1P04-3LD	$ 50.00
	60-Ampere Main			
8	NT1P08-3L	40.00	NT1P08-3LD	60.00
12	NT1P12-3L	50.00	NT1P12-3LD	70.00
	100-Ampere Main			
16	NT1P16-3L	74.00	NT1P16-3LD	86.00
20	NT1P20-3L	84.00	NT1P20-3LD	96.00
24	NT1P24-3L	94.00	NT1P24-3LD	106.00
28	NT1P28-3L	104.00	NT1P28-3LD	116.00
32	NT1P32-3L	114.00	NT1P32-3LD	126.00

*P denotes Plug Fusible. †C denotes Cartridge Fusible.

TOGGLE SWITCH-AND-FUSE PANELBOARDS

FOR LIGHTING AND APPLIANCE CIRCUITS

For Solid Neutral Identified Systems

Important — Catalog Numbers cover panels with Plug Fusible Branches. Cartridge Fusible are available at same price. Simply change "P" in Catalog Number to "C." Cartridge Fusible Panelboards with single door are not safety type.

For increased mains, sub-feeds, etc., refer to table on a following page.

TYPES NTP*—NTC† (Continued)

3-Wire Mains — 125/250 Volts A-C. or D-C.
2-Wire Branches — Single-Pole — 125 Volts
30-Amp. Toggle Switch and Fuse

No. Circuits	Single-Door Cat. No.	Single-Door Price Each	Door-In-Door Cat. No.	Door-In-Door Price Each
	Lugs in Mains			
	200-Ampere Main			
36	NT1P36-3L	$140.00	NT1P36-3LD	$152.00
40	NT1P40-3L	150.00	NT1P40-3LD	162.00
	Fuses in Mains			
	30-Ampere Main			
4	NT1P04-3F	46.00	NT1P04-3FD	62.00
	60-Ampere Main			
8	NT1P08-3F	58.00	NT1P08-3FD	74.00
12	NT1P12-3F	70.00	NT1P12-3FD	86.00
	100-Ampere Main			
16	NT1P16-3F	90.00	NT1P16-3FD	102.00
20	NT1P20-3F	102.00	NT1P20-3FD	114.00
24	NT1P24-3F	114.00	NT1P24-3FD	126.80
28	NT1P28-3F	126.00	NT1P28-3FD	138.00
32	NT1P32-3F	138.00	NT1P32-3FD	150.00
	200-Ampere Main			
36	NT1P36-3F	166.00	NT1P36-3FD	178.00
40	NT1P40-3F	178.00	NT1P40-3FD	190.00
	Fusible Brush Switch in Mains			
	30-Ampere Main			
4	NT1P04-3FS	64.00	NT1P04-3FSD	80.00
	60-Ampere Main			
8	NT1P08-3FS	74.00	NT1P08-3FSD	90.00
12	NT1P12-3FS	86.00	NT1P12-3FSD	102.00
	100-Ampere Main			
16	NT1P16-3FS	110.00	NT1P16-3FSD	122.00
20	NT1P20-3FS	122.00	NT1P20-3FSD	134.00
24	NT1P24-3FS	134.00	NT1P24-3FSD	146.00
28	NT1P28-3FS	146.00	NT1P28-3FSD	158.00
32	NT1P32-3FS	158.00	NT1P32-3FSD	170.00
	200-Ampere Main			
36	NT1P36-3FS	206.00	NT1P36-3FSD	218.00
40	NT1P40-3FS	218.00	NT1P40-3FSD	230.00

4-Wire Mains — 3 Phase — 125/250 Volts A-C.
2-Wire Branches — Single-Pole — 125 Volts
30-Amp. Toggle Switch and Fuse

No. Circuits	Single-Door Cat. No.	Single-Door Price Each	Door-In-Door Cat. No.	Door-In-Door Price Each
	Lugs in Mains			
	60-Ampere Main			
8	NT1P08-4L	$ 52.00	NT1P08-4LD	$ 64.00
12	NT1P12-4L	62.00	NT1P12-4LD	74.00
16	NT1P16-4L	78.00	NT1P16-4LD	90.00
20	NT1P20-4L	88.00	NT1P20-4LD	100.00
24	NT1P24-4L	100.00	NT1P24-4LD	112.00
	100-Ampere Main			
28	NT1P28-4L	110.00	NT1P28-4LD	122.00
32	NT1P32-4L	120.00	NT1P32-4LD	132.00
36	NT1P36-4L	146.00	NT1P36-4LD	154.00
40	NT1P40-4L	156.00	NT1P40-4LD	164.00

*P denotes Plug Fusible.
†C denotes Cartridge Fusible.

TOGGLE SWITCH-AND-FUSE PANELBOARDS

FOR LIGHTING AND APPLIANCE CIRCUITS

For Solid Neutral Identified Systems

TYPES NTP*—NTC† (Continued)

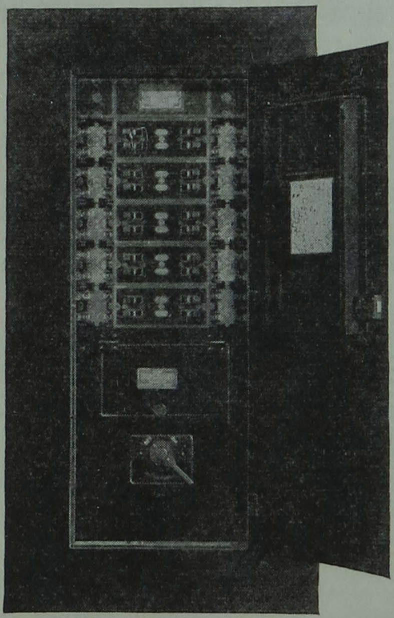
4-Wire Mains — 3 Phase — 125/250 Volts A-C.
2-Wire Branches — Single-Pole — 125 Volts
30-Amp. Toggle Switch and Fuse

No. Circuits	Single-Door Cat. No.	Single-Door Price Each	Door-In-Door Cat. No.	Door-In-Door Price Each
	Fuses in Mains			
	60-Ampere Main			
8	NT1P08-4F	$ 66.00	NT1P08-4FD	$ 78.00
12	NT1P12-4F	78.00	NT1P12-4FD	90.00
16	NT1P16-4F	96.00	NT1P16-4FD	108.00
20	NT1P20-4F	108.00	NT1P20-4FD	120.00
24	NT1P24-4F	120.00	NT1P24-4FD	132.00
	100-Ampere Main			
28	NT1P28-4F	132.00	NT1P28-4FD	144.00
32	NT1P32-4F	148.00	NT1P32-4FD	160.00
36	NT1P36-4F	170.00	NT1P36-4FD	180.00
40	NT1P40-4F	182.00	NT1P40-4FD	194.00
	Fusible Brush Switch in Mains			
	60-Ampere Main			
8	NT1P08-3FS	88.00	NT1P08-4FSD	100.00
12	NT1P12-3FS	100.00	NT1P12-4FSD	112.00
16	NT1P16-4FS	122.00	NT1P16-4FSD	134.00
20	NT1P20-4FS	136.00	NT1P20-4FSD	148.00
24	NT1P24-4FS	148.00	NT1P24-4FSD	160.00
	100-Ampere Main			
28	NT1P28-4FS	162.00	NT1P28-4FSD	174.00
32	NT1P32-4FS	176.00	NT1P32-4FSD	188.00
36	NT1P36-4FS	222.00	NT1P36-4FSD	234.00
40	NT1P40-4FS	234.00	NT1P40-4FSD	246.00

*P denotes Plug Fusible.
†C denotes Cartridge Fusible.

TYPES TP AND TC

For Protected Neutral Unidentified Systems



Cat. No. T2P10-3FSD

Important—Catalog Numbers cover panels with Plug Fusible Branches. Cartridge Fusible are available at same price. Simply change "P" in Catalog Number to "C." Cartridge Fusible Panelboards with single door are not safety type.

For 250-volt, 3 phase, 3-wire mains, add letter "H" to Catalog Number.

For 250-volt, 2-wire mains, add letter "H" to Catalog Number. For increased mains, sub-feeds, etc., refer to table on a following page.

TOGGLE SWITCH-AND-FUSE PANELBOARDS

FOR LIGHTING AND APPLIANCE CIRCUITS

For Protected Neutral Unidentified Systems

TYPES TP AND TC (Continued)

3-Wire Mains — 125/250 Volts A-C. or D-C.
2-Wire Branches — Double-Pole — 125 Volts
30-Amp. Toggle Switch and Fuse

	Single-Door		Door-In-Door	
No. Circuits	Cat. No.	Price Each	Cat. No.	Price Each
	Lugs in Mains			
	30-Ampere Main			
4	T2P04-3L	$ 38.00	T2P04-3LD	$ 58.00
	60-Ampere Main			
6	T2P06-3L	48.00	T2P06-3LD	68.00
8	T2P08-3L	58.00	T2P08-3LD	78.00
10	T2P10-3L	68.00	T2P10-3LD	88.00
12	T2P12-3L	78.00	T2P12-3LD	98.00
	100-Ampere Main			
14	T2P14-3L	90.00	T2P14-3LD	106.00
16	T2P16-3L	100.00	T2P16-3LD	116.00
18	T2P18-3L	110.00	T2P18-3LD	126.00
20	T2P20-3L	124.00	T2P20-3LD	140.00
	Fuses in Mains			
	30-Ampere Main			
4	T2P04-3F	52.00	T2P04-3FD	68.00
	60-Ampere Main			
6	T2P06-3F	62.00	T2P06-3FD	78.00
8	T2P08-3F	72.00	T2P08-3FD	88.00
10	T2P10-3F	82.00	T2P10-3FD	98.00
12	T2P12-3F	92.00	T2P12-3FD	108.00
	100-Ampere Main			
14	T2P14-3F	112.00	T2P14-3FD	128.00
16	T2P16-3F	122.00	T2P16-3FD	138.00
18	T2P18-3F	132.00	T2P18-3FD	148.00
20	T2P20-3F	142.00	T2P20-3FD	158.00
	Fusible Brush Switch in Main			
	30-Ampere Main			
4	T2P04-3FS	70.00	T2P04-3FSD	86.00
	60-Ampere Main			
6	T2P06-3FS	80.00	T2P06-3FSD	96.00
8	T2P08-3FS	90.00	T2P08-3FSD	106.00
10	T2P10-3FS	100.00	T2P10-3FSD	116.00
12	T2P12-3FS	110.00	T2P12-3FSD	126.00
	100-Ampere Main			
14	T2P14-3FS	130.00	T2P14-3FSD	146.00
16	T2P16-3FS	140.00	T2P16-3FSD	156.00
18	T2P18-3FS	150.00	T2P18-3FSD	166.00
20	T2P20-3FS	166.00	T2P20-3FSD	182.00

2-Wire Mains — 125 Volts A-C. or D-C.
2-Wire Branches — Double-Pole — 125 Volts
30-Amp. Toggle Switch and Fuse

	Single-Door		Door-In-Door	
No. Circuits	Cat. No.	Price Each	Cat. No.	Price Each
	Lugs in Main			
	60-Ampere Main			
4	T2P04-2L	42.00	T2P04-2LD	62.00
	100-Ampere Main			
6	T2P06-2L	52.00	T2P06-2LD	68.00
8	T2P08-2L	62.00	T2P08-2LD	78.00
10	T2P10-2L	72.00	T2P10-2LD	88.00
	200-Ampere Main			
12	T2P12-2L	82.00	T2P12-2LD	98.00
14	T2P14-2L	94.00	T2P14-2LD	110.00
16	T2P16-2L	104.00	T2P16-2LD	120.00
18	T2P18-2L	114.00	T2P18-2LD	130.00
20	T2P20-2L	124.00	T2P20-2LD	140.00

TOGGLE SWITCH-AND-FUSE PANELBOARDS

FOR LIGHTING AND APPLIANCE CIRCUITS

For Protected Neutral Unidentified Systems

TYPES TP AND TC (Continued)

2-Wire Mains — 125 Volts A-C. or D-C.
2-Wire Branches — Double-Pole — 125 Volts
30-Amp. Toggle Switch and Fuse

	Single-Door		Door-In-Door	
No. Circuits	Cat. No.	Price Each	Cat. No.	Price Each
	Fuses in Mains			
	60-Ampere Main			
4	T2P04-2F	$ 58.00	T2P04-2FD	$ 74.00
	100-Ampere Main			
6	T2P06-2F	70.00	T2P06-2FD	86.00
8	T2P08-2F	80.00	T2P08-2FD	96.00
10	T2P10-2F	90.00	T2P10-2FD	106.00
	200-Ampere Main			
12	T2P12-2F	110.00	T2P12-2FD	126.00
14	T2P14-2F	120.00	T2P14-2FD	136.00
16	T2P16-2F	130.00	T2P16-2FD	146.00
18	T2P18-2F	140.00	T2P18-2FD	156.00
20	T2P20-2F	150.00	T2P20-2FD	166.00
	Fusible Brush Switch in Mains			
	60-Ampere Main			
4	T2P04-2FS	72.00	T2P04-2FSD	88.00
	100-Ampere Main			
6	T2P06-2FS	92.00	T2P06-2FSD	108.00
8	T2P08-2FS	102.00	T2P08-2FSD	118.00
10	T2P10-2FS	112.00	T2P10-2FSD	128.00
	200-Ampere Main			
12	T2P12-2FS	144.00	T2P12-2FSD	160.00
14	T2P14-2FS	154.00	T2P14-2FSD	170.00
16	T2P16-2FS	174.00	T2P16-2FSD	190.00
18	T2P18-2FS	184.00	T2P18-2FSD	200.00
20	T2P20-2FS	194.00	T2P20-2FSD	210.00

Important — Catalog Numbers cover panels with Plug Fusible Branches. Cartridge Fusible are available at same price. Simply change "P" in Catalog Number to "C." Cartridge Fusible Panelboards with single door are not safety type.

For 250-volt, 3-phase, 3-wire mains, add letter "H" to Catalog Number.

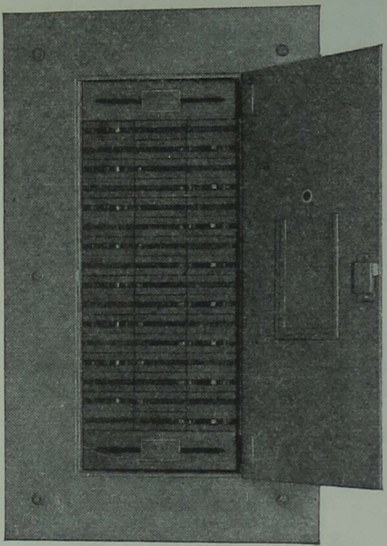
For 250-volt, 2-wire mains, add letter "H" to Catalog Number.

For increased mains, sub-feeds, etc., refer to table on a following page.

Nofuze Panelboards protect the wire — impossible to overfuse or tamper with calibration.

De-ion Convertible Panelboards can be made up of any combinations to suit your requirements.

CIRCUIT-BREAKER PANELBOARDS
FOR LIGHTING AND POWER CIRCUITS
Up to 50 Amperes — No Neutral Bar



Cat. No. A2B16-3HL

Important — Capacity of each branch circuit must be specified on order. For each 35 or 50-ampere, 2-pole branch breaker, add $2.00 to list price. For sub-feed prices, see table on a following page. Specify whether panelboard is to be flush or surface mounted.

TYPE ABH—Uses 2-Pole AB Breakers

Quick-make, quick-break. Rated at 250 volts A-C., or 125 volts D-C.

No. Circuits	3-Wire Mains Three Phase 230 Volts A-C. 2-Wire Branches Two-Pole 230 Volts A-C. — 15-Amp. Cat. No.	Price Each	2-Wire Mains Single Phase 230 Volts A-C. 2-Wire Branches Two-Pole 230 Volts — 15 Amp. Cat. No.	Price Each
	Lugs in Mains			
	100-Ampere Main			
4	A2B04-3HL100	$ 69	A2B04-2HL100	$ 69
6	A2B06-3HL100	91	A2B06-2HL100	91
8	A2B08-3HL100	113	A2B08-2HL100	113
10	A2B10-3HL100	135	A2B10-2HL100	135
12	A2B12-3HL100	157	A2B12-2HL100	157
14	A2B14-3HL100	179	A2B14-2HL100	179
16	A2B16-3HL100	201	A2B16-2HL100	201
18	A2B18-3HL100	223	A2B18-2HL100	223
20	A2B20-3HL100	245	A2B20-2HL100	245
	225-Ampere Main			
4	A2B04-3HL225	69	A2B04-2HL225	69
6	A2B06-3HL225	91	A2B06-2HL225	91
8	A2B08-3HL225	113	A2B08-2HL225	113
10	A2B10-3HL225	135	A2B10-2HL225	135
12	A2B12-3HL225	157	A2B12-2HL225	157
14	A2B14-3HL225	179	A2B14-2HL225	179
16	A2B16-3HL225	201	A2B16-2HL225	201
18	A2B18-3HL225	223	A2B18-2HL225	223
20	A2B20-3HL225	245	A2B20-2HL225	245
	400-Ampere Main			
4	A2B04-3HL400	79	A2B04-2HL400	79
6	A2B06-3HL400	101	A2B06-2HL400	101
8	A2B08-3HL400	123	A2B08-2HL400	123
10	A2B10-3HL400	145	A2B10-2HL400	145
12	A2B12-3HL400	167	A2B12-2HL400	167
14	A2B14-3HL400	189	A2B14-2HL400	189
16	A2B16-3HL400	211	A2B16-2HL400	211
18	A2B18-3HL400	233	A2B18-2HL400	233
20	A2B20-3HL400	255	A2B20-2HL400	255

CIRCUIT-BREAKER PANELBOARDS
FOR LIGHTING AND POWER CIRCUITS
Up to 50 Amperes — No Neutral Bar
TYPE ABH—Uses 2-Pole AB Breakers

No. Circuits	3-Wire Mains Three Phase 230 Volts A-C. 2-Wire Branches Two-Pole 230 Volts A-C. — 15-Amp. Cat. No.	Price Each	2-Wire Mains Single Phase 230 Volts A-C. 2-Wire Branches Two-Pole 230 Volts — 15 Amp. Cat. No.	Price Each
	Type AB Breaker in Mains			
	100-Ampere Main			
4	A2B04-3HAB100	$119	A2B04-2HAB100	$107
6	A2B06-3HAB100	141	A2B06-2HAB100	129
8	A2B08-3HAB100	163	A2B08-2HAB100	151
10	A2B10-3HAB100	185	A2B10-2HAB100	173
12	A2B12-3HAB100	207	A2B12-2HAB100	195
14	A2B14-3HAB100	229	A2B14-2HAB100	217
16	A2B16-3HAB100	251	A2B16-2HAB100	239
18	A2B18-3HAB100	273	A2B18-2HAB100	261
20	A2B20-3HAB100	295	A2B20-2HAB100	283
	225-Ampere Main			
4	A2B04-3HAB225	194	A2B04-2HAB225	169
6	A2B06-3HAB225	216	A2B06-2HAB225	191
8	A2B08-3HAB225	238	A2B08-2HAB225	213
10	A2B10-3HAB225	260	A2B10-2HAB225	235
12	A2B12-3HAB225	282	A2B12-2HAB225	257
14	A2B14-3HAB225	304	A2B14-2HAB225	279
16	A2B16-3HAB225	326	A2B16-2HAB225	301
18	A2B18-3HAB225	348	A2B18-2HAB225	323
20	A2B20-3HAB225	370	A2B20-2HAB225	345

TYPE ABH—Uses 3-Pole Breakers
Rated at 250 Volts A-C.

Important — (Table below): Capacity of each branch circuit must be specified on order. List prices based on 15-amp. breakers. The 20 and 25-amp. breakers can be supplied at same price. For each 35 or 50-amp., 2-pole, add $2.00 list, and for each 3-pole branch breaker, add $3.00 list. For panelboards requiring both 2-pole and 3-pole breakers, deduct $5.50 list for each 2-pole breaker used in place of a 3-pole. For sub-feed connection prices, see table on a following page. Specify flush or surface panelboard mounting.

No. Circuits	3-Wire Mains Three Phase 115 or 230V. A-C. Lugs In Mains Cat. No.	Price Each	3-Wire Branches Three-Pole 115 or 230V. 15-Amp. A-C. AB Breaker In Mains Cat. No.	Price Each
	100-Ampere Main			
4	A3B04-3HL100	$ 91	A3B04-3HAB100	$141
6	A3B06-3HL100	124	A3B06-3HAB100	174
8	A3B08-3HL100	157	A3B08-3HAB100	207
10	A3B10-3HL100	190	A3B10-3HAB100	240
12	A3B12-3HL100	223	A3B12-3HAB100	273
14	A3B14-3HL100	256	A3B14-3HAB100	306
	225-Ampere Main			
4	A3B04-3HL225	91	A3B04-3HAB225	216
6	A3B06-3HL225	124	A3B06-3HAB225	249
8	A3B08-3HL225	157	A3B08-3HAB225	282
10	A3B10-3HL225	190	A3B10-3HAB225	315
12	A3B12-3HL225	223	A3B12-3HAB225	348
14	A3B14-3HL225	256	A3B14-3HAB225	381
	400-Ampere Main			
4	A3B04-3HL400	101	....	......
6	A3B06-3HL400	134	....	......
8	A3B08-3HL400	167	....	......
10	A3B10-3HL400	200	....	......
12	A3B12-3HL400	233	....	......
14	A3B14-3HL400	266	....	......

Additions for Solid Neutral Bars

When mains are 100 amperes or less, add $5.00 to list price. No increased box height.

For 225-ampere mains, add $5.00 list. No increased box height.

For 400-ampere mains, add $10.00 list and increase box height 5½ inches.

ADDITIONS FOR AB BREAKER AND FUSE-TYPE PANELBOARDS
NOT FOR MULTI-BREAKER PANELBOARDS

The following additions apply to all types of panelboards except Multi-Breakers. SPECIAL ATTENTION IS CALLED TO THE $10.00 SET-UP CHARGE PER ORDER FOR EXTRAS indicated with an asterisk (*).

Where the words "Lighting Panelboards" are used, the list price additions apply to all lighting panelboards (Types NA1B, A2B, NT, T, N1P, NR3G) and Type ABH panelboards. Where the words "Distribution Panelboards" are used, the list price additions apply to combined switch-and-fuse panelboards and to convertible panelboards.

Increased Capacity Mains on Lighting Panelboards

From	To	For All Panels Having Two Hot Legs (With Or Without Neutral Bar)				For All Panels Having Three Hot Legs (With Or Without Neutral Bar)			
		Lugs Only	Fuses Only	Fusible or Non-Fusible Switch	Circuit Breaker	Lugs Only	Fuses Only	Fusible or Non-Fusible Switch	Circuit Breaker
30A	50A or 60A	....	$ 1.00	$ 2.00	....	....	$ 2.00	$ 3.00	....
30A	100A	$4.00	6.00	8.00	$22.00	$5.00	8.00	10.00	$ 27.00
50A or 60A	100A	4.00	4.00	6.00	22.00	5.00	6.00	8.00	27.00
50A or 60A	200A	6.00	16.00	30.00	84.00	8.00	20.00	34.00	102.00
100A	200A	5.00	12.00	26.00	62.00	7.00	16.00	32.00	75.00

Sub-Feeds on Lighting Panelboards

Where sub-feed necessitates mains heavier than standard, add for increased mains per table above, in addition to sub-feed listed below.

Capacity of Sub-Feed		Sub-Feeds For All Sub-Feeds Having Two Hot Legs (With Or Without Neutral Bar)				Sub-Feeds For All Sub-Feeds Having Three Hot Legs (With Or Without Neutral Bar)			
		Lugs Only	Fuses Only	Fusible or Non-Fusible Switch	Circuit Breaker	Lugs Only	Fuses Only	Fusible or Non-Fusible Switch	Circuit Breaker
(15, 20, 25)	30A	$2.00	$16.00	$30.00	+	$3.00	$18.00	$32.00	+
(35, 50)	60A	2.00	18.00	32.00	+	3.00	20.00	34.00	+
(70, 90)	100A	3.00	20.00	36.00	$ 39.00	4.00	22.00	40.00	$ 51.00
(125, 150, 175, 225)	200A	4.00	32.00	60.00	104.00	6.00	40.00	70.00	129.00

+ Figure as regular branch circuit.

MISCELLANEOUS SPECIAL PANEL INTERIOR CONSTRUCTIONS

	Lighting Panels	Distribution Panels
1 — For 2/2-wire 250-volt tumbler switch panelboards use same price as corresponding 125-volt panelboard.	See TP-TC listings	
2 — For lighting panelboards having 3/3-wire 125/250-volt solid neutral branches, use list price of 2/2-wire 250-volt panelboard and add for neutral bar as follows:		
Mains 100-ampere (or less)	$1.00	
Mains 200-ampere	2.00	
Mains 225-ampere	4.00	
Mains 400-ampere	7.00	
3 — For 3/2-wire tumbler switch panelboards for use on 3/2-wire, 3-phase to single-phase, 250 or 125-volt service, use price of corresponding 3/2-wire panel for 125/250-volt service.	See TP-TC listings	
4 — For lighting panelboards for use on 2-phase, 5-wire 125/250-volt solid neutral service with 125-volt single-pole branches, use price of panel with single-phase, 3-wire, solid neutral mains, having equivalent number of branches and add $5.00.	X See NTP and NTC listings	
5 — For all types of lighting panelboards having combinations of single and double-pole branches, convert to the total number of single poles and use price of corresponding single-phase or 3-phase 4-wire panelboards, depending on whether the mains are single-phase or 3-phase 4-wire.	X	
Then, on tumbler switch and fuse only panelboards, add $1.00 list for each double pole substituted for two single poles.	X	
6 — For circuit breaker panels having combinations of 1, 2 and 3-pole branches, or 1 and 3-pole branches, convert to the total number of single poles and use price of NA1B-4 panel having equivalent number of circuits and corresponding mains	X	
7 — For combination panels having some branches tumbler switched and some fusible only branches requiring only one door opening, list prices should be determined by figuring the panel as occupying the same space as an equivalent panel with tumbler switches in all branches less a deduction of $1.00 list each for each single pole or $2.00 list for each double-pole tumbler switch omitted.	X	
8 — Space only for additional branches: figure the panelboard on the basis of the total number of branches including the spare branches and make the following DEDUCTIONS; (a) for each 1-pole circuit breaker, $3.00; for each 2-pole, $8.00; for each 3-pole, $13.00; (b) for omitting 4 single-pole or 2 double-pole fusible tumbler switch branches (one unit) deduct $6.00 list	X	
9 — 800-ampere density bus only — no addition	X	X
10 — Leaving out neutral bar — no credit		
11 — Solderless lugs in mains (we reserve the right to furnish whatever make we desire) — no addition	X	X
12 — Unfusible main switches or sub-feed switches — use same price as fusible switch	X	X

ADDITIONS FOR AB BREAKER AND FUSE-TYPE PANELBOARDS (Continued)

NOT FOR MULTI-BREAKER PANELBOARDS

MISCELLANEOUS SPECIAL PANEL INTERIOR CONSTRUCTIONS

(Continued)

	Lighting Panels	Distribution Panels
13 — Non-automatic breakers — use price of automatic breakers	X	X
14 — Where 3-way tumbler switches are wanted on any type lighting panelboard, add $25.00 for the first pair and $15.00 for each additional pair	X	
15 — Main automatic circuit breaker on fuse panelboards — take price of lug-in-the-main panelboard and add to it the price of a sub-feed breaker of proper capacity and number of poles	X	
16 — Main Disconnect Switch in mains of circuit breaker panelboard. Take price of lug-in-the-main panelboard and add to it sub-feed switch of proper capacity and number of poles	X	
17 — Double lugs at mains of lighting panelboard only — use lug only sub-feed price	X	
18 — Meter loop or split bus mains:		
200-amp. or less	$ 5.00*	$21.00
225-amp. or less		21.00
400-amp. or less		23.00
600-amp. or less		30.00
19 — Remote Control Switches. (Push button control switches not included)	X	

Any Make	Mechanically Held	Electrically Held	Lighting Panels	Distribution Panels
30-amp. 2-pole	$80.00*	$56.00*	X	
60-amp. 2-pole	90.00*	68.00*	X	
75-amp. 2-pole	110.00*	....	X	
100-amp. 2-pole	125.00*	85.00*	X	
150-amp. 2-pole	185.00*	145.00*	X	
200-amp. 2-pole	225.00*	160.00*	X	
30-amp. 3-pole	90.00*	60.00*	X	
60-amp. 3-pole	100.00*	74.00*		
75-amp. 3-pole	120.00*	....		
100-amp. 3-pole	135.00*	95.00*		
150-amp. 3-pole	200.00*	170.00*	X	
200-amp. 3-pole	250.00*	190.00*	X	
Automatic Switch Company (Bulletin 909-A)				
30-amp. 2-pole	$45.00*	....	X	
30-amp. 3-pole	51.00*	....	X	

SPECIAL FINISHES ON CABINETS

	Lighting Panels	Distribution Panels
20 — Hot dipped galvanized panelboard box only	$ 50.00	$100.00
21 — Hot dipped galvanized panelboard box and front	75.00	130.00
22 — Cadmium plated panelboard box only	20.00	45.00
23 — Cadmium plated panelboard box and front	30.00	65.00
24 — The following colors are considered standard: Black, Green, Brown, Grey, Crystallac, or prime coat only. For colors other than these, there will be a charge of	20.00*	20.00*

FRONTS

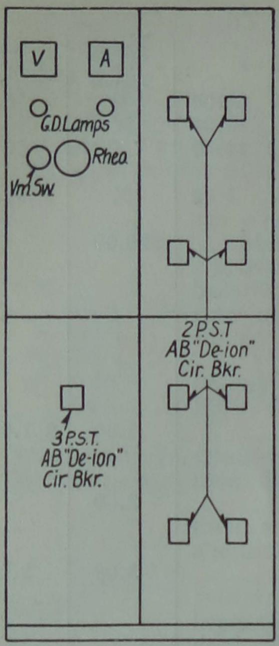
(Continued)

	Lighting Panels	Distribution Panels
25 — Spring hinges (Bommer, plain, brass or iron) — per Door	$ 4.00	$ 4.00
26 — Locks:		
Corbin S-7210 8.50	X	X
Corbin S-7407 9.00	X	X
Corbin 0768½ 5.00	X	X
Yale 511-S 8.50	X	X
Yale 511 8.50	X	X
Yale 5101-S 5.00	X	X
Yale WA-180 8.00	X	X
Yale R-272 $4.00	X	X
Yale R-274 4.00	X	X
Sargent 2878-PH 12.00	X	X
Master Keying: (Per Lock) 1.00	X	X
27 — Flush receptacle or bull's eye only in trim over door, add NOTE: If this is to be used as a fuse test lamp or to be switched from inside of cabinet, an extra branch must be figured on the panelboard.	$10.00	
28 — Ornamental molding around outside of door, ADD PER LINEAL FOOT	1.00	$ 1.00
29 — Flush lock on inner door of door-in-door front instead of catch only, ADD	2.50	
30 — Special directory frame with glass (other than manufacturer's standard)	3.00	3.00
31 — Trim punched for tumbler switch handles and box arranged with supporting frame for flush switches (switches not included):		
First front with one switch space	5.00	
Each additional switch space in either first or additional fronts	2.00	
32 — No. 10 gauge trims (heavier than Code gauge)	5.00*	5.00*
33 — Dust-resisting fronts	20.00*	30.00*
34 — Vault handle locks (when not furnished as standard)	5.00*	5.00*
35 — Double or split door, one above the other	5.00*	5.00*
36 — Fronts made of galvanized sheet steel instead of furniture steel	5.00*	10.00*
37 — Glass panel in door	35.00*	35.00*
38 — Window or cutout in trim for watthour meter	10.00*	10.00*

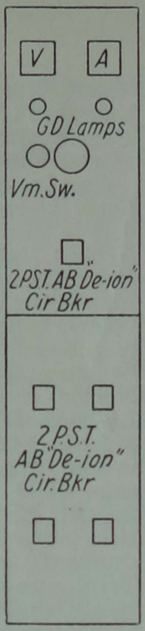
BOXES

	Lighting Panels	Distribution Panels
39 — No. 10 gauge boxes (heavier than Code gauge)	$5.00*	$5.00*
40 — Increasing lighting panel box depth to 8-inches maximum	5.00*	
41 — Increasing side gutters of lighting panelboard to make 24-inch wide maximum	5.00*	
42 — Increasing end gutter to make a 6-inch maximum longer box	5.00*	
43 — Weather-proof or raintight panelboard cabinets, including brass hinges and sloping roof:		
Single Door Type	35.00*	50.00*
Door-Back-of-Door Type	50.00*	75.00*
44 — Space in lighting panelboard for extra equipment such as time clocks, when such equipment increases the length of the box only. For each 15 inches increase in box length, or fraction thereof, add	5.00*	
45 — Space in distribution panelboards for extra equipment such as current transformers, etc., when equipment does not require a box more than 10 inches deep:		
For each 20-inch increase in box length, or fraction thereof, add		10.00*
Where boxes deeper than 10 inches but not over 14 inches must be used, for each 20-inch increase in box length, or fraction thereof, add		20.00*

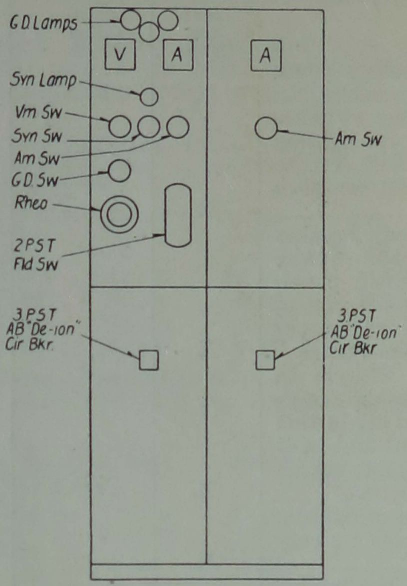
WESTINGHOUSE SMALL CAPACITY SWITCHBOARDS



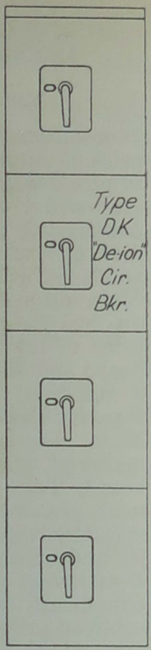
Typical Small Dead-Front Steel Switchboard Using AB "De-ion" Circuit Breakers and Square-Type Instruments



Typical Dead-Front D.C. Switchboard to Control One, 2-Wire Generator and Four Feeders



A.C. Generator and Feeder, 3-Phase Switchboard Panels



Typical Dead-Front A.C. or D.C. Switchboard to Control Four Feeders—600-Ampere, 600-Volt Maximum Rating

Small and medium capacity switchboards are adaptable to industrial and mining applications where low-cost is of prime importance and a complete installation of not more than five or six panels is required. They are especially designed for the control of incoming lines, generators, motor generators, synchronous converters, induction and synchronous motors, feeders and battery charging equipment.

Dead-front switchboards are limited to a maximum of 600 volts d.c. and 2500 volts a.c., excepting in cases of certain synchronous converters, installations for mines where a.c. voltages up to 7500 may be used.

Live-front switchboards are limited to 600 volts a.c. or 250 volts d.c. except in certain mining service where 600 volts d.c. is used.

D.C. switchboards have a maximum ampere rating of 600 amperes and a.c. switchboards are available up to 600 amperes for low voltages not exceeding 600 volts and 200 amperes for 2400 volts. Switchboards suitable for larger capacities are available on request.

The latest type square instruments are standard equipment for both the dead-front and live-front switchboards and present a pleasing, neat appearing assembly.

"De-ion" circuit breakers, capable of interrupting high current values are standard equipment for either d.c. or a.c. dead-front and live-front switchboards within their ratings.

Live-front switchboards are equipped with DK or DA air circuit breakers and knife switches for various applications.

BUS-BAR COPPER

The straps are hard, cold rolled or drawn to size; they have a conductivity of 98 per cent of Matthiesson's standard and are supplied in lengths of from 10 to 14 feet.

CONNECTING STRAPS AND LIGHT BUS BARS
(Ratings are for Open Type Construction)

STRAPS		AMPERE CAPACITY	
Cross Section	Number	Copper	Aluminum
⅛"x¾"	1	200	160
	2	350	290
⅛"x1"	1	250	210
	2	450	380
⅛"x2"	1	500	425
	2	900	750
⅛"x3"	1	750	640
	2	1300	1100
¼"x2"	1	700	600
	2	1100	800

¼"x3" and ¼"x4" straps are used as bus connections in groupings of 1, 2, 3, and 4 bars. Current capacities are as given in CONVENTIONAL BUS BARS TABLE.

CONVENTIONAL BUS BARS
(Ratings are for Open Type Construction)

BUS BAR DATA		AMPERE CAPACITY			
		60 Cycle—A.C.*		Direct Current	
Cross Section	Number	Copper	Aluminum	Copper	Aluminum
3"x¼"	1	1000	820	1050	850
	2	1650	1350	1800	1400
	3	1800	1475	2400	1900
	4	2100	1720	3000	2400
4"x¼"	1	1350	1000	1375	1070
	2	2250	1860	2400	1890
	3	2500	2060	3200	2560
	4	3000	2500	4000	3240
5"x¼"	1	1620	1330	1650	1350
	2	2700	2220	2900	2260
	3	3000	2460	3800	3000
	4	3600	2850	4700	3780
6"x¼"	1	1890	1550	1920	1500
	2	3050	2500	3300	2600
	3	3500	2860	4300	3460
	4	4150	3400	5200	4200

*Current values apply to both single and polyphase systems.

Bus bars having more than one strap should have ¼-inch space between straps. Your inquiries are solicited for complete Switchboards for either alternating or direct current service. Prices on application.

ANACONDA COPPER BUS TUBES

HIGH CONDUCTIVITY COPPER BUS TUBES

Standard Pipe Sizes—Hard Drawn

Size of Tubes Inches	DIAMETER OF TUBE Inches Outside	Inside	AREA OF COPPER Thousand Cir. Mils	Weight Per Foot Pounds	Amperes for 30° C. Rise Indoor	Outdoor
¼	0.540	0.375	151.0	0.458	255	320
⅜	0.675	0.494	211.6	0.642	325	410
½	0.840	0.625	315.0	0.956	410	550
¾	1.050	0.822	426.8	1.30	515	680
1	1.315	1.062	601.4	1.83	675	860
1¼	1.660	1.368	884.2	2.68	875	1130
1½	1.900	1.600	1050.0	3.19	1025	1285
2	2.375	2.062	1389.0	4.21	1300	1585
2½	2.875	2.500	2016.0	6.12	1700	2010
3	3.500	3.062	2874.0	8.72	2175	2560
3½	4.000	3.500	3750.0	11.38	2525	3040
4	4.500	4.000	4250.0	12.90	2850	3400
4½	5.000	4.500	4750.0	14.42	3100	3700
5	5.563	5.063	5313.0	16.12	3425	4100
6	6.625	6.125	6375.0	19.35	4150	4750

Tube dimensions taken from A.S.T.M. Specification B-42-33.

Tabular values based on a density of 0.322-pound per cubic inch. Conductivity of 98.0% I.A.C.S. at 20° C. or 68° F.

These are Minimum values for Anaconda High Conductivity Hard Drawn Copper Bus Tubes.

Specifications covering the manufacture, testing and delivery of Copper Bus Tubes are available, and will be sent on request.

Amperes capacity based on indoor mounting, not enclosed in separate housing, 40° C. ambient.

Rerating of tubes for changes in ambient, enclosure, or outdoor mounting, must be based on the particular conditions to which each installation will be subjected.

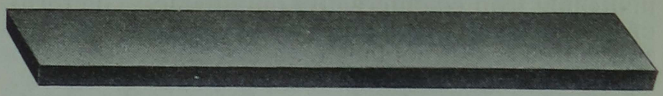
Extra strong pipe size conductors have a 60-cycle capacity roughly 10% greater than regular.

Double extra heavy wall tubes with wall thicknesses over ½-inch have smaller current capacity than ½-inch wall tubes.

Ratings for the regular sizes are satisfactory for 60 cycles and d.c.

BUS-BAR COPPER

RECTANGULAR OR FLAT BUS COPPER



Mill Lengths, 8 to 12 Feet

Size In.	Lbs., Per Lineal Ft.	Cap. Amps.	Size In.	Lbs., Per Lineal Ft.	Cap. Amps.
1/16x ½	.12	30	3/16x3	2.16	560
1/16x ⅝	.15	40	3/16x3¼	2.34	610
1/16x ¾	.18	50	3/16x3½	2.52	660
1/16x ⅞	.21	55	3/16x3¾	2.70	705
1/16x1	.24	60	3/16x4	2.88	750
1/16x1¼	.30	75	¼x ½	.48	125
1/16x1½	.36	90	¼x ⅝	.60	155
⅛x ½	.24	75	¼x ¾	.72	185
⅛x ⅝	.30	80	¼x ⅞	.84	215
⅛x ¾	.36	90	¼x1	.97	250
⅛x ⅞	.42	110	¼x1¼	1.20	315
⅛x1	.48	125	¼x1½	1.44	375
⅛x1¼	.60	155	¼x1¾	1.68	435
⅛x1½	.72	200	¼x2	1.93	500
⅛x1¾	.84	215	¼x2¼	2.17	563
⅛x2	.96	250	¼x2½	2.40	625
⅛x2¼	1.09	281	¼x2¾	2.64	687
⅛x2½	1.20	313	¼x3	2.88	750
⅛x2¾	1.32	343	¼x3¼	3.12	813
⅛x3	1.44	375	¼x3½	3.37	875
⅛x3¼	1.56	403	¼x3¾	3.61	938
⅛x3½	1.68	438	¼x4	3.86	1000
⅛x3¾	1.80	469	⅜x1	1.44	375
⅛x4	1.93	500	⅜x-¼	1.80	470
3/16x ½	.36	95	⅜x1½	2.16	560
3/16x ⅝	.45	115	⅜x1¾	2.52	660
3/16x ¾	.54	140	⅜x2	2.88	750
3/16x ⅞	.63	163	⅜x2¼	3.24	940
3/16x1	.72	187	⅜x2½	3.60	1125
3/16x1¼	.90	235	½x1	1.93	500
3/16x1½	1.08	280	½x1¼	2.41	625
3/16x1¾	1.26	330	½x1½	2.89	750
3/16x2	1.44	375	½x1¾	3.37	875
3/16x2¼	1.62	418	½x2	3.86	1000
3/16x2½	1.80	470	½x2¼	4.34	1250
3/16x2¾	1.98	515	½x2½	4.82	1500

Larger sizes on request.

SPACING OF BUS-BARS

Voltage	Distance Between Bus Centers In.	Min. Distance Between Opposite Live Parts In.	Min. Distance Between Live Parts and Ground In.
250	1½- 2½	1 -2	¾-1½
650	2 - 3	1½-2½	1 -2
1100	4 - 5	1½-3½	1½-2½
2200	5 - 6½	2¾-4	2 -2¾
4000	6 - 7½	3 -4½	2¼-3
6600	7 - 8	3½-4½	2½-3
7500	8 - 9	4 -4½	2¾-3¼
9000	9 -10	4¼-4½	3 -3½
11000	9 -11	4½-4¾	3¼-3¾
13200	9 -12	4¾-5	3½-4¼
15000	9 -14	5 -5½	3¾-4½
16500	10 -14	5½-6	4½-5
18000	11 -14	6 -7	5 -6
22000	12 -15	7½-9	6 -7
27000	14- 16	10 -12	8 - 9
35000	18- 22	12 -15	10 -12
44000	22- 27	16 -18	13½-15
60000	28- 31	17½-19	16 -17½
66000	34- 38	22 -24	18½-23
75000	36- 42	26 -30	25 -27½
90000	46- 54	32 -35	27 -29
100000	54- 60	34½-39	28½-32
110000	60- 72	38 -41	33 -36
122000	66- 78	42 -47	35½-39
130000	74- 84	48½-56	39 -41
150000	82- 96	59 -67	45 -50
160000	88-104	70 -84	53 -62

The Distances given for the Lower Values are Based on a Safety Factor of 3½ times between Live Parts of Opposite Polarity and Safety Factor three times Between Live Parts and Grounds. The Larger Values Show Good Practice for the Larger Plants or where the Capacities are Liable to be Increased.

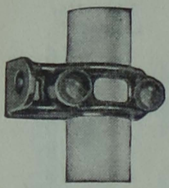
Tubular Buses should be used above 22,000 Volts

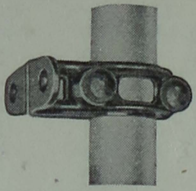
WESTINGHOUSE PIPE FITTINGS

FOR STRUCTURAL PURPOSES

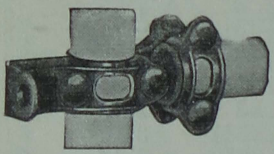
These fittings are made of the highest grade of malleable iron commercially obtainable. The form of the yoke and other unit parts is such that a considerable area of contact with the pipe is secured. As the fittings are bolted up they yield slightly, due to the malleable characteristics of the metal, until they fit the pipe perfectly.

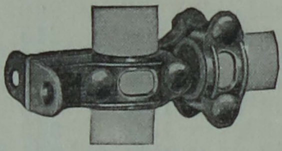
PANEL MOUNTING BRACES


Right or Left


Intermediate

Direction of Mounting	Pipe Size Inches	Galvanized Finish Cat. No.	Galvanized Finish Price Each	Black Enameled Finish Cat. No.	Black Enameled Finish Price Each
Right or Left....	1¼, ...	692759	$0.40	386302	$0.35
Intermediate	1¼, ...	692760	.45	386303	.40


Right or Left

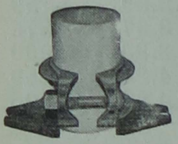

Intermediate

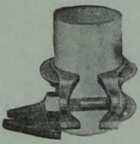
Direction of Mounting	Pipe Size Inches	Galvanized Finish Cat. No.	Galvanized Finish Price Each	Black Enameled Finish Cat. No.	Black Enameled Finish Price Each
Right or Left	1¼, ...	692762	.90	386305	.80
Intermediate	1¼, ...	692761	1.00	386304	1.10
Right, 30° Brace	1¼, 1¼	692765	1.15	387234	1.00
Left, 30° Brace	1¼, 1¼	692766	1.15	387235	1.00
Panel Mounting Bracket with Adjustable Brace	1¼, 1¼	692767	1.20	397091	1.00

Panel fittings for 1¼-inch pipe are drilled to accommodate ½-inch panel bolt.

FLANGE CLAMPS

Floor and Wall Braces


Double-Foot


Single-Foot

Rigidly secure a pipe passing through a floor or wall. No. 386669 and No. 396997 are also used as the floor flange and top iron bracket on switchboard pipe frames, and for supporting base in rear of panel.

Description	Pipe Size In.	Take M'nt'g Bolt Dia., In.	Galvanized Finish Cat. No.	Galvanized Finish Price Each	Black Enameled Finish Cat. No.	Black Enameled Finish Price Each
Double-Foot	1¼	⅜	386668	$0.40	386669	$0.40
Double-Foot	2	½	386672	.45	386673	.45
Single-Foot	1¼	⅜	396996	.30	396997	.30
Single-Foot	2	½	397000	.70	397001	.70

Floor or Wall Braces

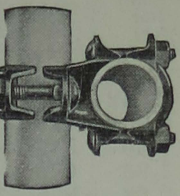
Floor or Wall Flanges

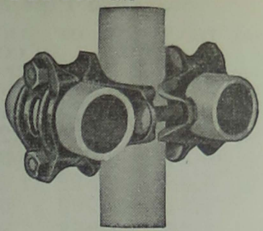
Description	Pipe Size In.	Take M'nt'g Bolt Dia., In.	Galvanized Finish Cat. No.	Galvanized Finish Price Each	Black Enameled Finish Cat. No.	Black Enameled Finish Price Each
Brace	1¼	½	386674	$0.50	386675	$0.50
Brace	2	⅝	386676	1.00	386667	.80
Flange, 30°	1¼	½	396679	.50	396680	.50
Flange, 30°	2	⅝	396681	.90	396682	.80
Flange, 45°	1¼	½	396683	.55	396684	.55
Flange, 45°	2	⅝	396685	.90	396686	.80

WESTINGHOUSE PIPE FITTINGS

FOR STRUCTURAL PURPOSES

TYPE A PIPE FITTINGS

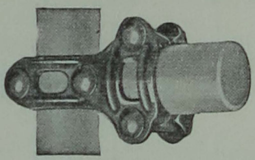

Cross, Single

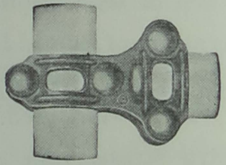

Cross, Double

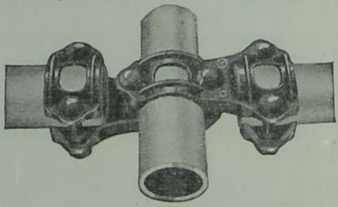
Description	Pipe Size Inches	Galvanized Cat. No.	Galvanized Price Each	Black Enameled Cat. No.	Black Enameled Price Each
Tee Fittings	1¼ 1¼	386310	$1.07	386311	$0.90
Tee Fittings	2 1¼	386312	1.10	386313	1.00
4-Way or Side Outlet Tee	1¼ 1¼ 1¼	386330	1.65	386331	1.50
4-Way or Side Outlet Tee	2 1¼ 1¼	386332	1.80	386333	1.70
Side Out. Tee	1¼ 1¼	386524	1.60	386525	.90
Side Out. Tee	2 1¼	386526	1.95	386527	1.80
5-Way Fitting	1¼ 1¼ 1¼	386530	2.20	386531	1.80
5-Way Fitting	2 1¼ 1¼	386532	2.50	386533	2.30
Tee Brace Combinations					
Tee Type A*	1¼ 1¼ 1¼	396807	1.50	396808	1.35
Tee Type A*	2 1¼ 1¼	396809	1.70	396810	1.55
Tee Type A*	2 2 1¼	396811	2.30	396812	2.10
Tee Type A†	1¼ 1¼ 1¼	396831	1.50	396832	1.35
Tee Type A†	2 1¼ 1¼	396833	1.75	396834	1.60
Tee Type A†	2 2 1¼	396835	2.25	396836	2.00

*With Type C 45° Right Brace. †With Type C 45° Left Brace.

TYPE C PIPE FITTINGS


Tee Fitting


Tee, Heavy Duty


4-Way Convertible

Description	Pipe Size Inches	Galvanized Cat. No.	Galvanized Price Each	Black Enameled Cat. No.	Black Enameled Price Each
Tee Fittings	1¼ 1¼	387258	$0.75	387259	$0.70
Tee Fittings	2 1¼	387260	1.10	387261	1.00
Tee, Hvy. Dty.	1¼ 1¼	387264	.80	387265	.70
Tee, Hvy. Dty.	2 1¼	387266	1.15	387267	1.00
4-Way Conv.	1¼ 1¼ 1¼	386765	1.15	386766	1.25
4-Way Conv.	2 1¼ 1¼	386767	1.55	386768	1.35
4-Way H. D.	1¼ 1¼	387276	1.30	387277	1.15
4-Way H. D.	2 1¼	387278	1.90	387279	1.70
Type C Corner Braces					
Right*	1¼ 1¼ 1¼	397154	1.35	397155	1.25
Right*	2 1¼ 1¼	397156	1.85	397157	1.65
Left†	1¼ 1¼ 1¼	397166	1.40	397167	1.30
Left†	2 1¼ 1¼	397168	1.75	397169	1.60
Double‡	1¼ 1¼ 1¼	386634	1.80	386635	1.70
Double‡	2 1¼ 1¼	386636	2.30	386637	2.10
Double‡	2 1¼ 2	386638	2.65	386639	2.30
Double‡	2 2 1¼	386640	3.15	386641	2.75

*Type C 45° Brace with Type B 60° Brace. †Type C 45° Brace with Type B 45° Brace. ‡Double 45° Brace with Right Angle Brace. Note: 30° and 60° fittings also are available. Also available for 2-inch pipe in all directions.

WESTINGHOUSE BUS SUPPORTS

LOW VOLTAGE BUS SUPPORTS—5000 VOLTS

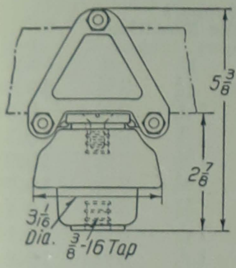
They have a maximum rating of 5000 volts and accommodate 2 and 3-inch copper straps and ⅜ to 1 15/16-inch diameter round conductors. For mounting on flat surfaces and 1¼-inch pipe structures.

Minimum bus space available for 2 and 3-inch copper straps is ¼-inch. The maximum space depends upon length of bolts used with clamps. Not more than four copper straps with ¼-inch spacing should be clamped on this support.

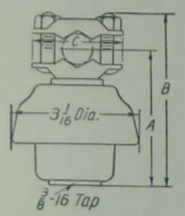
Aluminum alloy three-bolt clamps complete with ¼-inch diameter bolts of sufficient length for ½-inch bus spacing are included in catalog numbers of the supports for strap copper.

Supports for clamping round conductors are complete with bolts and brass yokes. The lengths of both depend upon diameter of conductors and are included in catalog number.

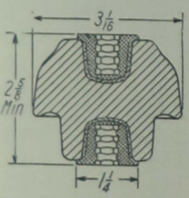
Insulators used in these supports are interchangeable. They are made of high-grade wet-process porcelain with chocolate-brown glaze. A threaded brass insert is secured to each end of the porcelain by a Babbitt bond. These inserts receive a screw which is attached to the mounting details. The cushioning effect of the Babbitt bond renders the insulators less susceptible to damage from shock or vibration.



Edgewise Mounting Strap Support



Flat Mounting Cable Support



Porcelain Insulator with Inserts

Edgewise Mounting Strap Support

Cat. No.	Copper Strap Size Inches	Price Each*
558795	¼ x 2	$5.25
696906	¼ x 3	5.70
1¼-Inch Pipe Mounting Strap Support		
575213	¼ x 2	$6.25
696907	¼ x 3	6.70

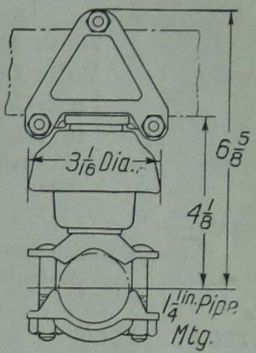
*Prices do not include spacers. Add **$0.30** net each when required.

Flat Mounting Cable Support

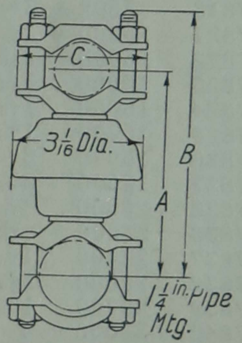
Cat. No.	Cable and Tubing Size in Inches	Dimensions in Inches A	B	C	Price Each
575214	⅜ to ¾	3⅜	4⅛	2 3/16	$4.00
575215	¾ to 1 1/16	3½	4⅝	2 3/16	4.60
575216	¾ I.P. size	3½	4⅜	2 3/16	4.60
575217	1 1/16 to 1 5/16	3 13/16	4⅜	2 11/16	4.60
575218	1 5/16 to 1⅝	3⅞	5	2 11/16	5.35
575219	1¼ I.P. size	3 15/16	5	2 11/16	5.35
575220	1⅝ to 1 15/16	3 13/16	5	2⅞	5.35
575221	1½ I.P. size	3⅞	5	2⅞	5.35
1¼-Inch Pipe Mounting Cable Support					
575222	⅜ to ¾	4⅝	5⅜	2 3/16	$5.00
575223	¾ to 1 1/16	4¾	5⅞	2 3/16	5.60
575224	¾ I.P. size	4¾	5⅝	2 3/16	5.60
575225	1 1/16 to 1 5/16	5 1/16	6	2 11/16	5.60
575226	1 5/16 to 1⅝	5⅛	6¼	2 11/16	6.35
575227	1¼ I.P. size	5 3/16	6¼	2 11/16	6.35
575228	1⅝ to 1 15/16	5 1/16	6¼	2⅞	6.35
575229	1½ I.P. size	5⅛	6¼	2⅞	6.35

Porcelain Insulator with Inserts

Cat. No.		Price Each
562313	For supports shown above....................	$2.00



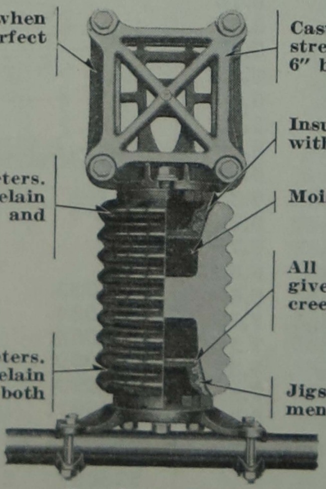
1¼-Inch Pipe Mounting Strap Support



1¼-Inch Pipe Mounting Cable Support

TYPE H — INDOOR BUS SUPPORTS

7500, 15000 and 23000 Volts



Malleable-iron tongue castings used when busses are mounted vertically, assure perfect contact and rigid construction.

Class B supports are in 6″ and 8″ diameters. Made of high-grade wet-process porcelain with brown glaze. Cemented top insert and bottom ring base.

Class A supports are in 4″ and 6″ diameters. Made of high-grade wet-process porcelain with brown glaze. Cemented inserts both ends.

Cast aluminum alloy clamps give maximum strength, minimum weight. For 2, 3, 4, 5 or 6″ bus bars.

Insulator and casting held firmly together with cement.

Moisture-proof insulating compound.

All surfaces set in cement are sanded to give better grip and maximum striking and creeping distances.

Jigs used in cementing process assure alignment and uniformity.

Type H Bus Support Construction Details

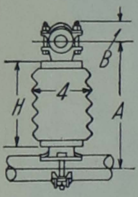
WESTINGHOUSE BUS SUPPORTS

TYPE H—INDOOR

7500, 15000 and 23000 Volts

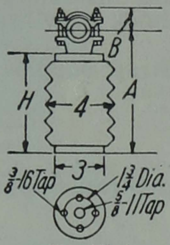
The type H line of bus supports is designed for a-c. or d-c. service. These supports are arranged for supporting flat bars up to 6 inches wide in either a vertical or horizontal position, front or rear connected. Front-connected supports are also available for round conductors up to 2-inch pipe size. The mounting may be for flat surface or for 1¼-inch or 2-inch pipe with either one or two pipe clamps.

FOR MOUNTING ROUND CONDUCTORS



For Pipe Mounting

4-Inch Diameter Insulators 7500, 15000, 23000 Volts for Supporting Conductors 9/16 to 2⅜ Inches in Diameter



For Flat Mounting

Single Clamp Cable Support—Single Clamp, 1¼-Inch Pipe Mounting*

Cat. No.	Rated Volts	Cable Diam.	Dimens., Inches A	B	H	Price Each
527807	7500	9/16	5½	⅝	3¾	$5.50
527808	7500	13/16	5⅝	¾	3¾	5.50
527809	7500	1 1/16	5¾	⅞	3¾	6.10
527810	7500	1 5/16	5⅞	1 1/16	3¾	6.10
527811	7500	1⅝	6⅝	1¼	3¾	6.85
527812	7500	2	6 13/16	1 7/16	3¾	6.85
527813	7500	2⅜	7	1 11/16	3¾	7.25
527821	15000	9/16	7½	⅝	5¾	6.00
527822	15000	13/16	7⅝	¾	5¾	6.00
527823	15000	1 1/16	7¾	⅞	5¾	6.60
527824	15000	1 5/16	7⅞	1 1/16	5¾	6.60
527825	15000	1⅝	8⅝	1¼	5¾	7.35
527826	15000	2	8 13/16	1 7/16	5¾	7.35
527827	15000	2⅜	9	1 11/16	5¾	7.75
527835	23000	9/16	11½	⅝	9¾	7.50
527836	23000	13/16	11⅝	¾	9¾	7.50
527837	23000	1 1/16	11¾	⅞	9¾	8.10
527838	23000	1 5/16	11⅞	1 1/16	9¾	8.10
527839	23000	1⅝	12⅝	1¼	9¾	8.85
527840	23000	2	12 13/16	1 7/16	9¾	8.85
527841	23000	2⅜	13	1 11/16	9¾	9.25
Single Clamp Cable Support, Flat Mounting						
527870	7500	9/16†	4 1/16	⅝	3¾	4.50
527871	7500	13/16	4 3/16	¾	3¾	4.50
527872	7500	1 1/16	4 5/16	⅞	3¾	5.10
527873	7500	1 5/16	4 7/16	1 1/16	3¾	5.10
527874	7500	1⅝	5 3/16	1¼	3¾	5.85
527875	7500	2	5⅜	1 7/16	3¾	5.85
527876	7500	2⅜	5 9/16	1 11/16	3¾	6.25
527877	15000	9/16†	6 1/16	⅝	5¾	5.00
527878	15000	13/16	6 3/16	¾	5¾	5.00
527879	15000	1 1/16	6 5/16	⅞	5¾	5.60
527880	15000	1 5/16	6 7/16	1 1/16	5¾	5.60
527881	15000	1⅝	7 3/16	1¼	5¾	6.35
527882	15000	2	7⅜	1 7/16	5¾	6.35
527883	15000	2⅜	7 9/16	1 11/16	5¾	6.75
527884	23000	9/16†	10 1/16	⅝	9¾	6.50
527885	23000	13/16	10 3/16	¾	9¾	6.50
527886	23000	1 1/16	10 5/16	⅞	9¾	7.10
527887	23000	1 5/16	10 7/16	1 1/16	9¾	7.10
527888	23000	1⅝	11 3/16	1¼	9¾	7.85
527889	23000	2	11⅜	1 7/16	9¾	7.85
527890	23000	2⅜	11 9/16	1 11/16	9¾	8.25

*These fittings can be supplied in 2-clamp pipe mounting at no increase in price.

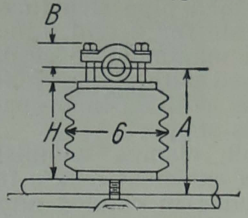
2-inch pipe mounting can be supplied. Add $0.50 to above list prices.

WESTINGHOUSE BUS SUPPORTS

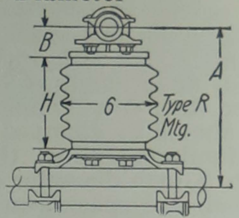
TYPE H—INDOOR

FOR MOUNTING ROUND CONDUCTORS

6-Inch Diameter Insulators—7500, 15000 and 23000 Volts for Supporting Conductors ¾ to 2⅜ Inches in Diameter



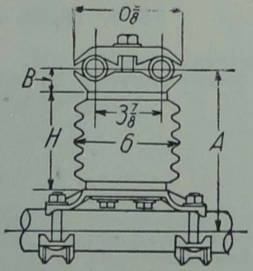
Single Clamp Cable Support



Two Clamp Cable Support

Single Clamp Cable Support
Single Clamp, 1¼-Inch Pipe Mounting

Cat. No.	Rated Volts	Cable Diam.	Dimens., Inches A	B	H	Price Each
527912	7500	1 3/16	5 3/16	15/16	3¾	$9.60
527913	7500	1⅜	5¼	1 1/16	3¾	9.60
527914	7500	1⅝	5⅜	1 3/16	3¾	10.35
527915	7500	2 3/16	5 11/16	1⅜	3¾	10.35
527916	7500	2⅜	5¾	1⅝	3¾	10.75
527922	15000	1 3/16	7 3/16	15/16	5¾	10.10
527923	15000	1⅜	7¼	1 1/16	5¾	10.10
527924	15000	1⅝	7⅜	1 3/16	5¾	10.85
527925	15000	2 3/16	7 11/16	1⅜	5¾	10.85
527926	15000	2⅜	7¾	1⅝	5¾	11.25
527932	23000	1 3/16	11 3/16	15/16	9¾	12.60
527933	23000	1⅜	11¼	1 1/16	9¾	12.60
527934	23000	1⅝	11⅜	1 3/16	9¾	13.35
527935	23000	2 3/16	11 11/16	1⅜	9¾	13.35
527936	23000	2⅜	11¾	1⅝	9¾	13.75
Two Clamp Cable Support **Two-Clamp, 1¼-Inch Pipe Mounting**						
528002	7500	¾	7 3/16	1½	3¾	9.00
528003	7500	1 1/16	7⅜	1 11/16	3¾	9.60
528004	7500	1 5/16	7½	1 13/16	3¾	9.60
528005	7500	1 21/32	7⅝	1 15/16	3¾	10.35
528006	7500	1 29/32	7⅞	2 3/16	3¾	10.35
528007	7500	2⅜	8⅛	2 7/16	3¾	10.75
528014	15000	¾	9 3/16	1½	5¾	9.50
528015	15000	1 1/16	9⅜	1 11/16	5¾	10.10
528016	15000	1 5/16	9½	1 13/16	5¾	10.10
528017	15000	1 21/32	9⅝	1 15/16	5¾	10.85
528018	15000	1 29/32	9⅞	2 3/16	5¾	10.85
528019	15000	2⅜	10⅛	2 7/16	5¾	10.00
528026	23000	¾	13 3/16	1½	9¾	12.10
528027	23000	1 1/16	13⅜	1 11/16	9¾	12.60
528028	23000	1 5/16	13½	1 13/16	9¾	12.60
528029	23000	1 21/32	13⅝	1 15/16	9¾	13.35
528030	23000	1 29/32	13⅞	2 3/16	9¾	13.35
528031	23000	2⅜	14⅛	2 7/16	9¾	13.75



6-Inch Diameter Insulators 7500, 15000 and 23000 Volts for Supporting Conductors 1 15/16 to 3 Inches in Diameter

Can be supplied also in flat mounting with 6-inch or 8-inch porcelains.

Two-Cable Single Clamp Support
Two-Clamp 1¼-Inch Pipe Mounting

528083	7500	1 15/16	7 3/16	1½	3¾	$12.00
528084	7500	2⅜	7 7/16	1¾	3¾	12.60
528085	7500	3	7¾	2 1/16	3¾	13.75
528089	15000	1 15/16	7¼	1½	5¾	12.50
528090	15000	2⅜	7½	1¾	5¾	13.10
528091	15000	3	7 13/16	2 1/16	5¾	14.25
528095	23000	1 15/16	11¼	1½	9¾	15.00
528096	23000	2⅜	11½	1¾	9¾	15.60
528097	23000	3	11 13/16	2 1/16	9¾	16.75

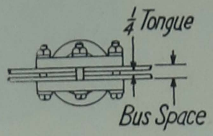
The above bus supports can be supplied also in flat mounting.

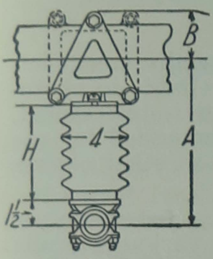
WESTINGHOUSE BUS SUPPORTS

TYPE H—INDOOR

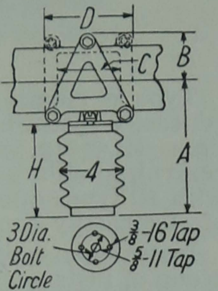
FOR MOUNTING FLAT CONDUCTORS EDGEWISE

4-Inch Diameter Insulators — 7500, 15000 and 23000 Volts for Mounting Flat Conductors Edgewise





Single Clamp



Flat Base

3 and 4-Bolt Assembly—Single Clamp, 1¼-Inch Pipe Mounting*

3-Bolt Assembly

Cat. No.	Rated Volts	Width of Bus	Dimens., Inches A	B	H	Price Each
528548	7500	2	6 15/16	1¾	3¾	$6.75
528549	7500	3	7 7/16	2¼	3¾	7.20
528550	7500	4	7 15/16	2¾	3¾	8.15
528554	15000	2	8 15/16	1¾	5¾	7.25
528555	15000	3	9 7/16	2¼	5¾	7.70
528556	15000	4	9 15/16	2¾	5¾	8.65
528560	23000	2	12 15/16	1¾	9¾	8.75
528561	23000	3	13 7/16	2¼	9¾	9.20
528562	23000	4	13 15/16	2¾	9¾	10.15

4-Bolt Assembly

Cat. No.	Rated Volts	Width of Bus	Dimens., Inches A	B	H	Price Each
528567	7500	3	7 7/16	2¼	3¾	7.70
528568	7500	4	7 15/16	2¾	3¾	8.80
528573	15000	3	9 7/16	2¼	5¾	8.20
528574	15000	4	9 15/16	2¾	5¾	9.30
528579	23000	3	13 7/16	2¼	9¾	9.70
528580	23000	4	13 15/16	2¾	9¾	10.80

3 and 4-Bolt Assembly—Flat Base

3-Bolt Assembly

Cat. No.	Rated Volts	Width of Bus	A	B	H	Price Each
528602	7500	2	5½	1¾	3¾	5.75
528603	7500	3	6	2¼	3¾	6.20
528604	7500	4	6½	2¾	3¾	7.15
528605	15000	2	7½	1¾	5¾	6.25
528606	15000	3	8	2¼	5¾	6.70
528607	15000	4	8½	2¾	5¾	7.65
528608	23000	2	11½	1¾	9¾	7.75
528609	23000	3	12	2¼	9¾	8.20
528610	23000	4	12½	2¾	9¾	9.15

4-Bolt Assembly

Cat. No.	Rated Volts	Width of Bus	A	B	H	Price Each
528612	7500	3	6	2¼	3¾	6.70
528613	7500	4	6½	2¾	3¾	7.80
528615	15000	3	8	2¼	5¾	7.20
528616	15000	4	8½	2¾	5¾	8.30
528618	23000	3	12	2¼	9¾	8.70
528619	23000	4	12½	2¾	9¾	9.80

*These fittings can be supplied also in flat or 2-clamp pipe mounting.

WESTINGHOUSE BUS SUPPORTS

TYPE H—INDOOR
ALUMINUM BUS CLAMPS FOR FLAT BARS

3-Bolt Bus-Bar Clamps

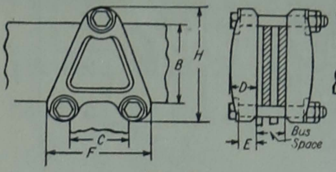


Fig. 2

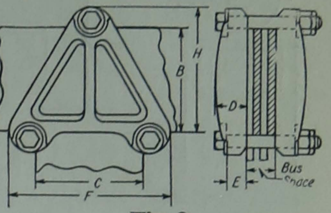


Fig. 3

Fig. 2 and 3—3-Bolt Bus-Bar Clamp Used as a Part of Type H Supports and for Splicing Busses and Making Bus Connections.

Fig. No.	Diam. Steel Bolt, In.	No. Req.	Dimensions, Inches †A	B	C	D	E	F	H
2	‡⅜	3	2⅛	2	2	15/16	⅝	3 5/16	3 11/16
2	‡⅜	3	2⅛	2	3	15/16	⅝	3 5/16	4 11/16
2	‡⅜	3	2¼	3	2	1	11/16	4 5/16	3 11/16
2	‡½	3	2¼	3	3	1 1/16	11/16	4 9/16	5 1/16
3	‡½	3	2½	3	4	1 1/16	¾	4 9/16	6 1/16
3	‡½	3	2½	4	4	1 3/16	¾	5 9/16	6 1/16
3	‡½	3	2½	4	5	1 3/16	¾	5 9/16	7 1/16

Fig. No.	Cat. No. Washer	No. Req.	Cat. No. Locknut	No. Req.	Single Clamp (Only)	No. Req.	*Price Per Pair
2	588107	6	493303	3	569673	2	$1.60
2	588107	6	493303	3	569674	2	1.80
2	588107	6	493303	3	569675	2	1.70
2	588108	6	493302	3	569676	2	1.80
3	588108	6	493302	3	569677	2	2.40
3	588108	6	493302	3	569678	2	2.40
3	588108	6	493302	3	569679	2	3.60

4-Bolt Bus-Bar Clamps

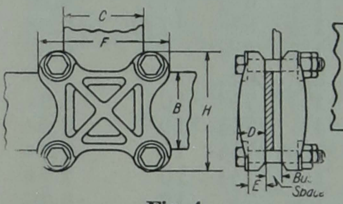


Fig. 4

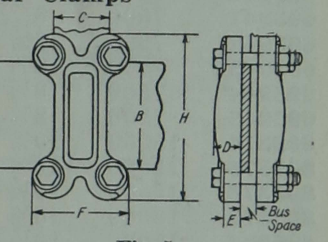


Fig. 5

Fig. 4 and 5—4-Bolt Bus-Bar Clamps for Type H Supports

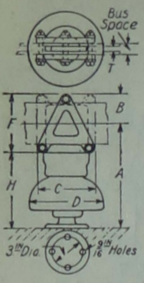
Fig. No.	Diam. Steel Bolt, In.	No. Req.	Dimensions, Inches †A	B	C	D	E	F	H
4	‡½	4	2⅜	3	3	1	11/16	4 9/16	5 1/16
5	‡½	4	2⅜	4	2	1 1/16	11/16	6 1/16	3 9/16
4	‡½	4	2⅜	4	3	1 1/16	11/16	6 1/16	4 9/16
4	‡½	4	2½	4	4	1 3/16	¾	5 9/16	6 1/16
4	‡½	4	2½	5	4	1 3/16	¾	7 1/16	5 9/16
4	‡½	4	2⅝	5	5	1 3/16	13/16	6 9/16	7 1/16
4	‡½	4	2⅝	6	3	1 5/16	13/16	7 9/16	5 1/16
4	‡½	4	2⅝	6	4	1 5/16	13/16	7 9/16	6 1/16
4	‡½	4	2⅝	6	5	1 5/16	13/16	7 9/16	7 1/16
4	‡½	4	2⅝	6	6	1 5/16	13/16	7 9/16	8 1/16

Fig. No.	Cat. No. Washer	No. Req.	Cat. No. Locknut	No. Req.	Single Clamp (Only)	No. Req.	*Price Per Pair
4	588108	8	493302	4	569680	2	$2.30
5	588108	8	493302	4	569681	2	2.70
4	588108	8	493302	4	569682	2	2.90
4	588108	8	493302	4	569683	2	3.10
4	588108	8	493302	4	569684	2	4.50
4	588108	8	493302	4	569685	2	4.60
4	588108	8	493302	4	569686	2	5.50
4	588108	8	493302	4	569687	2	5.70
4	588108	8	493302	4	569688	2	5.90
4	588108	8	493302	4	569689	2	6.20

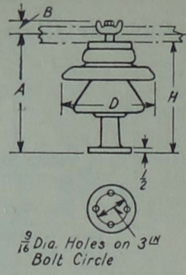
*Price per pair complete with bolts, nuts and washers. †Length of bus clamping bolt equals bus space plus dimension A. ‡M.B. tap and nut. For one complete clamp with bolts, nuts and washers order the quantities specified in the above tables. Dimensions are for reference only. Official dimensions on request.

WESTINGHOUSE BUS SUPPORTS

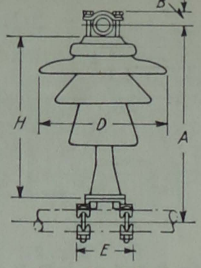
OUTDOOR TYPE



Edgewise



Round Conductor



Standard Duty

Cap Arranged for Edgewise Mounted Rectangular Conductor—Pin Arranged for Flat Mounting

Cat. No.	Rated Volts	Dimensions, Inches A	B	C	T	Width Bus Run	Price Each#
694374*‡	7500	9¼	1¾	4⅞	¼	2	$6.85
694375*‡	7500	9¾	2¼	5⅛	¼	3	7.30
694376*‡	7500	10⅜	2⅞	6⅛	½	4	8.25
694377†‡	7500	9¾	2¼	5⅛	¼	3	7.80
694378†‡	7500	10⅜	2⅞	6⅛	½	4	8.90
948779*§	15000	11¾	1¾	4⅞	¼	2	8.19
948780*§	15000	12¼	2¼	5⅛	¼	3	8.64
948781*§	15000	12⅞	2⅞	6⅛	½	4	9.59
948782†§	15000	12¼	2¼	5⅛	¼	3	9.14
948783†§	15000	12⅞	2⅞	6⅛	½	4	10.24

Single Clamp for Round Conductor to Cap—Pin Arranged for Flat Mounting

Cat. No.	■Rated Volts	★Dimensions, Inches A	B	D	H	Price Each#
693939	7500	7¾	1⅛	6⅜	7½	$5.60
693940	7500	7⅞	1¼	6⅜	7½	5.60
693941	7500	8	1⅜	6⅜	7½	6.20
693942	7500	8⅛	1¼	6⅜	7½	6.20
693943	7500	8⅜	1⅜	6⅜	7½	6.95
693944	7500	8½	1¾	6⅜	7½	6.95
693945	7500	8¾	2	6⅜	7½	7.35
805374	15000	10¼	1⅛	7½	10	6.94
805375	15000	10⅜	1¼	7½	10	6.94
805376	15000	10½	1⅜	7½	10	7.54
805377	15000	10⅝	1¼	7½	10	7.54
805378	15000	10⅞	1⅜	7½	10	8.29
805379	15000	11	1¾	7½	10	8.29
805380	15000	11¼	2	7½	10	8.69

Single Clamp for Round Conductor to Cap—Pin Arranged for Double Clamp Type 2-Inch Pipe Mounting

Cat. No.	■Rated Volts	★Dimensions, Inches A	B	D	E	H	Price Each#
694127	7500	10	1⅛	6⅜	6¾	7½	$7.35
694128	7500	10⅛	1¼	6⅜	6¾	7½	7.35
694129	7500	10¼	1⅜	6⅜	6¾	7½	7.95
694130	7500	10⅜	1¼	6⅜	6¾	7½	7.95
694131	7500	10½	1⅜	6⅜	6¾	7½	8.70
694132	7500	10¾	1½	6⅜	6¾	7½	8.70
694133	7500	10⅞	1⅝	6⅜	6¾	7½	9.10
948843	15000	12½	1⅛	7½	6¾	10	8.64
948844	15000	12⅝	1¼	7½	6¾	10	8.64
948845	15000	12¾	1⅜	7½	6¾	10	9.29
948846	15000	12⅞	1¼	7½	6¾	10	9.29
948847	15000	13	1⅜	7½	6¾	10	10.04
948848	15000	13¼	1½	7½	6¾	10	10.04
948849	15000	13⅜	1⅝	7½	6¾	10	10.44

Bus space—T+ ½-inch.

*3 bolt clamp type. ‡ "D" dimension, 6⅜ inches.

†4 bolt clamp type. § "D" dimension, 7½ inches.

★Maximum outside diameter of conductor, 9/16 to 2⅜ inches.

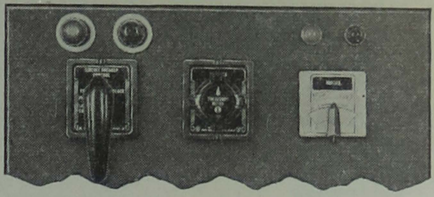
¶Catalog number includes complete support.

#These prices apply in the Central Zone; Prices west of Colorado are slightly higher.

■Also available in 23000 volt rating.

WESTINGHOUSE ROTARY SWITCHES

TYPE W—INSTRUMENT, CONTROL, AUXILIARY



Rectangular Name Plate with Handles and Indicator Lamps

Application

Type W rotary switches are ruggedly constructed, easily accessible, smooth and reliable in operation. Made in three classifications: instrument, control, auxiliary—they are recommended for use with all types of circuit breakers and other classes of electrically controlled apparatus.

Instrument switches connect any instrument or group of instruments selectively to various circuits as required for metering or synchronizing.

Control switches control electrically operated switches and circuit breakers, rheostats, engine and turbine governors and feeder potential regulators.

Auxiliary switches are applicable to circuit breakers, operating mechanisms, remotely controlled gang-operated disconnect switches and similar equipment.

Type W switches are insulated for 600 volts and have the continuous current-carrying capacity of 10 amperes, which is very conservative.

Recommended Interrupting Ratings

Alternating Current	Direct Current
125 Volts, 10.0 Amperes	125 Volts, 4.0 Amperes
250 Volts, 7.5 Amperes	250 Volts, 2.0 Amperes
600 Volts, 1.5 Amperes	600 Volts, 0.5 Amperes

Operation

Ammeter, regulator transfer and temperature switches are operated by a fixed handle; all other **instrument switches** are operated by a removable key.

Control switches are operated by a fixed handle with a spring that automatically returns switch to "off" position.

Handle of circuit breaker control switches can be locked in "trip" position by pulling handle forward. This action also opens signal lamp circuit.

Auxiliary switch is operated by a lever clamped to the squared end of the shaft.

Construction

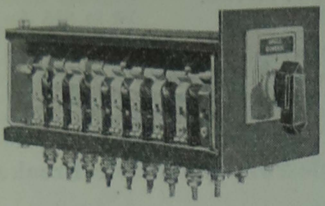
Instrument and control switches can be supplied with oval, round-notched, pistol-grip or streamlined handles. **Round-notched handle** is standard for the instrument switch, **pistol-grip handle** standard for control switch, **streamlined handle** for the trend of the times.

Removable keys for instrument switches are labeled and constructed so that they can be inserted only in the correct switch and removed in the "off" position only. The key from any dissimilar switch cannot be inserted.

Indicating lamps can be used in conjunction with control switches to obtain electrical indication of position of circuit breakers or other devices.

WESTINGHOUSE ROTARY SWITCHES

TYPE W—INSTRUMENT, CONTROL, AUXILIARY



Type W Instrument Switch with Rectangular Nameplate and Minatrol Handle

Construction (Continued)

Rectangular dial plates are standard for instrument and control switches. Round dial plates can be supplied to match existing equipment.

Minatrol front, used on standard Minatrol switches can be supplied for instrument switches.

Yale locks can be applied to control switches, locking them in closed or open position and positively eliminating accidental closing or opening of a circuit.

Oil or dustproof switches also can be supplied in the control switch class.

Auxiliary switches are supplied with or without covers, depending upon application. A weatherproof auxiliary switch, completely housed for outdoor application can be supplied.

Operating shaft, $\frac{7}{16}$-inch diameter cold rolled steel, rotates in bronze bearings riveted in steel end plates that provide top support. Enameled channel-shaped steel top provides additional strength and assures permanent alignment of contacts.

Brass moving contacts with a corrosion-resisting finish are separated by molded moisture-proof spacers. Contacts have numbered key notches to facilitate assembly, and are keyed to Micarta insulating tubes covering the shaft. Spacers and contacts are clamped to the shaft.

Stationary contacts are self-aligning and provide positive contact pressure through non-current-carrying compression springs. The high-pressure wiping action of the moving contacts assures clean, low-resistance and long-life contacts.

Multiple laminated copper shunts conduct current to studs mounted on base, eliminating turning and looseness.

Base of black, molded material has high mechanical and dielectric strength, is ribbed to give ample creepage distance between studs, and each stud hole is numbered to identify connection on wiring diagram.

Side plates of Micarta slide out of grooves for inspection of contacts.

Mounting—Switches can be arranged for ⅛ to 2-inch thick panels by changing mounting screws. Correct shaft length is obtained by moving handle and pointer screw to proper tapped hole in shaft. Three-hole mounting is standard for all instrument and control switches.

Interchangeability of the majority of parts permits great flexibility of design, so that special switches, other than those listed, can be supplied. The maximum number of circuits in the unit switch is 10. Additional circuits can be arranged by using a double base switch or multiple switches operated from one handle.

WESTINGHOUSE ROTARY SWITCHES

TYPE W—INSTRUMENT, CONTROL, AUXILIARY

INSTRUMENT SWITCHES

Rectangular Name Plate Switch

Cat. No.	Description of Switches	Dim. "A" Inches*	Price Each	Key No.	Price Each
	Ammeter				
1040746	3 Ind. Cir.	11$\frac{9}{16}$	**$20.00**	†	†
	Voltmeter				
1040750	3ϕ ac., 3-Wire	6$\frac{7}{32}$	**13.00**	**519129**	**$2.00**
	Frequency Meter				
1040753	2-Pole	4$\frac{17}{32}$	**13.00**	**519132**	**2.00**
	Wattmeter				
1040754	Polyphase	7$\frac{29}{32}$	**18.00**	**519133**	**2.00**
	Power Factor Meter				
1040755		7$\frac{1}{16}$	**19.00**	**519134**	**2.00**
	Temperature Indicator				
1040765	S.P., 6 Cir.	7$\frac{29}{32}$	**28.00**	†	†
	Synchroscope to Bus				
1040758	Without Interlocks	5⅜	**13.00**	**519136**	**2.00**

Round Name Plate Switch

Cat. No.	Description of Switches	Dim. "A" Inches*	Price Each	Key No.	Price Each
	Ammeter				
519110	3 Ind. Cir.	11$\frac{9}{16}$	**20.00**	†	†
	Voltmeter				
519114	3ϕ ac., 3-Wire	6$\frac{7}{32}$	**13.00**	**519129**	**2.00**
	Frequency Meter				
519117	2-Pole	4$\frac{17}{32}$	**13.00**	**519132**	**2.00**
	Wattmeter				
519118	Polyphase	7$\frac{29}{32}$	**19.00**	**519133**	**2.00**
	Power Factor Meter				
591626		7$\frac{1}{16}$	**19.00**	**519134**	**2.00**
	Temperature Indicator				
940082	S.P., 6 Cir.	7$\frac{29}{32}$	**28.00**	†	†
	Synchroscope to Bus				
519122	Without Interlocks	5⅜	**13.00**	**519136**	**2.00**

†Separate key not required.

Ammeter, Voltmeter and Synchroscope Switches for other combinations and uses are available.

CONTROL SWITCHES

Rectangular Name Plate Switch

Cat. No.	Description of Switches	Dim. "A" Inches*	Price Each
	Oil Circuit Breaker Control		
1040768	SP-DT with Lamp and Automatic Indicator Cutouts	6$\frac{7}{32}$	**$15.00**
1040769	SP-DT with Overload Relay Contacts and Lamp Cutouts	7$\frac{1}{16}$	**15.00**
	Voltage Control		
1040772	3-P.D.T. Switch	7$\frac{29}{32}$	**19.00**

Round Name Plate Switch

Cat. No.	Description of Switches	Dim. "A" Inches*	Price Each
	Oil Circuit Breaker Control		
519331	SP-DT with Lamp and Automatic Indicator Cutouts	6$\frac{7}{32}$	**15.00**
519332	SP-DT with Overload Relay Contacts and Lamp Cutouts	7$\frac{1}{16}$	**15.00**
	Voltage Control		
519335	3-P.D.T. Switch	7$\frac{29}{32}$	**19.00**

*Dimension "A" is the distance from rear of switch to rear end of panel.

AUXILIARY SWITCHES

Description	Overall Length Inches†	Price Each	Cat. No.		Price Each
			With Cover	Without Cover	
4-P.–2a, 2b*	6$\frac{5}{16}$	**$19.00**	**676960**	**581819**	**$18.00**
6-P.–3a, 3b*	8	**25.00**	**676963**	**591822**	**24.00**

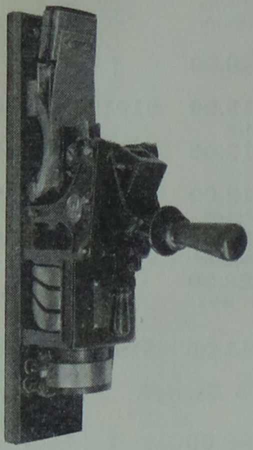
*Letters "a" and "b" designate "make" and "break" as shown in the NEMA handbook on switching equipment.

†Distance from front of base to rear end of switch. Other oil circuit, voltage, field rheostat, induction regulator, motor, speed, auxiliary and weatherproof auxiliary switches are available.

WESTINGHOUSE TYPE CL AIR CIRCUIT BREAKERS

TYPE CL-10—MANUALLY OPERATED

For Direct or Alternating Current Circuits



Typical Single-Pole CL Breaker

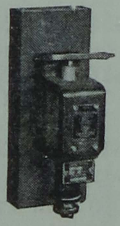
Designed for 250-volt industrial use where a compact breaker is required. Used on all kinds of service up to 250 volts without barriers and up to 600 volts A-C. and 750 volts D-C. with barriers between poles. Should not be used for heavy 750-volt railway service that requires Type CHM breakers. Type CL can be supplied with plain overload, inverse time limit overload, shunt trip, underload trip, with a single-pole double-throw or double-pole double-throw signal and cutout contact device, with field discharge contacts, and with electric closing and tripping mechanisms.

Distinctive Features

Short unbreakable carbon arms and compact construction minimize amount of headroom and mounting space. One-piece frame per pole facilitates assembling and remounting breaker from temporary wooden base to permanent switchboard. Unit construction permits easy assembly and mounting of multi-pole breakers, or of breakers with the different attachments. Laminated main brush making butt contact with stud block insures high contact pressure and self-cleaning contacts. Provision for adjustment of brush pressure. Ample capacity copper parts carry rated current. Powerful toggle mechanism gives easy and positive closing. Positive locking device prevents opening from ordinary shocks.

Main contact consists of set of laminations, each one of which, due to its own spring properties, makes an independent contact at each end with the stationary members. Secondary contacts are located directly above the brush contact. Large, low-resistance carbon contacts, self-aligning, self-wiping in action and mounted at the end of the carbon arm, give final break to arc.

UNDERVOLTAGE RELEASE ATTACHMENT



Number includes mechanism complete without coil. Price includes mechanism complete with coil. Control voltage must be specified when ordered.

Hand Reset

Cat. No. For D-C. Control	Cat. No. For A-C. Control	Amp. D-C. Max. 20° C. Rise	Shpg. Wt. Lbs.	Price Each
323371	**323372**	12½ to 400	10	**$23.00**
371704	**371710**	600 to 800	10	**33.00**
371705	**371711**	1000 to 2000	13	**33.00**
371706	**371712**	2400 to 3000	13	**74.00**
371707	**371713**	4000	13	**74.00**
371707	**371713**	5000	13	**74.00**
371708	**371714**	6000	13	**74.00**
371709	**371715**	8000	13	**74.00**
438690	**438691**	10000	13	**74.00**

WESTINGHOUSE TYPE CL AIR CIRCUIT BREAKERS

TYPE CL-10—MANUALLY OPERATED

1, 2 and 3 Poles

Voltage Ratings
250 V. A-C. or D-C.
600 V. A-C.
or
750 V. D-C.

Current Ratings:
10 to 225 Amperes
Interrupting Rating:
10000 RMS Amperes

Live front with single closing handle for all poles of a multi-pole breaker. Tabulated prices below cover a trip-free (non-closeable on overload) breaker with built-in overload trip coil with inverse-time limit attachment on each pole.

Single-Pole and 2-Pole Breakers

Amp. Rating	1-Pole 250 V. A-C.–D-C. 600 V. A-C. 750 V. D-C. 1-Coil	2-Poles 250 V. A-C.–D-C. 1-Coil	2-Poles 250 V. A-C.–D-C. 2-Coil	2-Poles 600 V. A-C. 750 V. D-C. 1-Coil	2-Poles 600 V. A-C. 750 V. D-C. 2-Coil
10	**$52.20**	**$53.24**	**$67.68**	**$55.81**	**$70.25**
15	**52.20**	**54.15**	**68.59**	**56.72**	**71.16**
20	**52.20**	**55.05**	**69.49**	**57.62**	**72.06**
25	**52.20**	**55.95**	**70.39**	**58.52**	**72.96**
35	**52.20**	**56.86**	**71.30**	**59.43**	**73.87**
50	**52.20**	**57.76**	**72.20**	**60.33**	**74.77**
70	**52.20**	**59.57**	**74.01**	**62.14**	**76.58**
90	**52.20**	**61.37**	**75.81**	**63.94**	**78.38**
100	**52.20**	**64.08**	**78.52**	**66.65**	**81.09**
125	**52.20**	**65.89**	**80.33**	**68.46**	**82.90**
150	**55.80**	**69.49**	**83.93**	**72.06**	**86.50**
175	**55.80**	**71.29**	**85.73**	**73.86**	**88.30**
225	**55.80**	**73.10**	**87.54**	**75.67**	**90.11**

3-Pole Breakers

Amp. Rating	3-Poles 250 V. A-C.–D-C. 2-Coil	3-Poles 250 V. A-C.–D-C. 3-Coil	3-Poles 600 V. A-C. 750 V. D-C. 2-Coil	3-Poles 600 V. A-C. 750 V. D-C. 3-Coil	Shpg. Wt.Lbs.
10	**$94.76**	**$109.20**	**$99.90**	**$114.34**	30
15	**95.67**	**110.11**	**100.81**	**115.25**	30
20	**96.57**	**111.01**	**101.71**	**116.15**	30
25	**97.47**	**111.91**	**102.61**	**117.05**	33
35	**99.28**	**113.72**	**104.42**	**118.86**	33
50	**100.08**	**115.52**	**105.22**	**120.66**	33
70	**103.78**	**118.22**	**108.92**	**123.36**	36
90	**107.39**	**121.83**	**112.53**	**126.97**	36
100	**109.20**	**123.64**	**114.34**	**128.78**	36
125	**114.62**	**129.06**	**119.76**	**134.20**	45
150	**120.04**	**134.48**	**125.18**	**139.62**	45
175	**123.64**	**138.08**	**128.78**	**143.22**	45
225	**126.35**	**140.79**	**131.49**	**145.93**	45

All breakers have a range of tripping adjustment from 100% to 200% of rated current. Barriers are included in price of 600 Volt A-C. 750 Volt D-C. breakers.

MODIFICATIONS

Additions to Include

Shunt Trip Attachment	**$13.53**
Instantaneous Undervoltage Release	**13.53**
Reverse Current Attachment:	
All Capacities—Single Pole	**28.87**
10-90 Amperes—2 or 3 pole	**36.10**
100-125 Amperes—2 or 3 pole	**40.61**
150-225 Amperes—2 or 3 pole	**45.13**
Dead Front—Including steel cover plate, position indicator, extended handle, trip button, barriers	**21.00**
(For rotary handle and swinging panel type dead front construction, write for data and prices.)	
Extended Type Standard Handle, if required	No Addition
Auxiliary Switch—Plunger type:	
Single-Pole, Single-Throw	**7.20**
2-Pole, Double-Throw	**14.84**
Type W Rotary Switch—6 Point	**22.48**

Deductions to Omit

Inverse-Time Limit Attachment and Overload Coil per pole	**$14.44**
Inverse-Time Limit Attachment Only, per pole	**5.42**

WESTINGHOUSE TYPE CL AIR CIRCUIT BREAKERS

TYPE CL-20—MANUAL OR ELECTRICAL

1, 2 and 3 Poles

Voltage Ratings: **250 V. A-C. or D-C.**, **600 V. A-C.** or **750 V. D-C.**
Current Ratings: 10 to 600 Amperes
Interrupting Rating: 20000 RMS Amperes

Electrically operated breakers include D-C. solenoid (Rectox included for A-C. applications) and closing relay. Shunt Trip Attachment and Auxiliary Switch are not included. Tabulated prices below cover live front breaker, trip-free (non-closeable on overload) and built-in series overload trip coil with inverse-time limit attachment. For other arrangements, add or deduct modifications as required.

Single-Pole Breakers

Ampere Rating	Manually Operated, Volts: 250 V. A-C.-D-C. 1-Coil	Manually Operated, Volts: 600 A-C. 750 D-C. 1-Coil	Shp. Wt. Lbs.	Electrically Operated, Volts: 250 V. A-C.-D-C. 1-Coil	Electrically Operated, Volts: 600 A-C. 750 A-C. 1-Coil	Shp. Wt. Lbs.
10–150	$ 77.80	$ 79.51	14	$154.75	$156.46	34
175	82.08	83.79	15	159.03	160.74	35
200	86.35	88.06	15	163.30	165.01	35
225	89.77	91.48	15	166.72	168.43	35
250	93.19	94.90	25	170.14	171.85	45
275	96.61	98.32	25	173.56	175.27	45
300	100.03	101.74	35	176.98	178.69	55
325	104.31	106.02	35	181.26	182.97	55
350	107.73	109.44	35	184.68	186.39	55
400	114.57	116.28	35	191.52	193.23	55
450	122.26	123.97	40	199.21	200.92	65
500	129.96	134.84	40	206.91	208.62	70
550	136.80	138.51	40	213.75	215.46	70
600	144.49	146.20	40	221.44	223.15	70

All breakers have a range of tripping adjustment from 100% to 200% of rated current.

2-Pole Breakers

Ampere Rating	Manually Operated: 250 V. A-C.-D-C. 1-Coil	250 V. A-C.-D-C. 2-Coil	600 Volts A-C. 750 Volts D-C. 1-Coil	600 Volts A-C. 750 Volts D-C. 2-Coil	Shp. Wt. Lbs.
10–150	$117.99	$149.62	$121.41	$152.31	28
175	121.41	153.04	124.83	156.46	30
200	124.83	156.46	129.10	159.88	30
225	129.10	160.74	132.52	164.16	30
250	132.52	163.84	135.94	167.58	70
275	135.94	167.58	139.36	171.00	70
300	140.22	171.85	143.64	175.27	70
325	143.64	175.27	147.06	178.69	70
350	147.06	178.69	150.48	182.11	70
400	153.90	185.53	157.32	188.95	70
450	161.59	193.23	165.01	196.65	80
500	169.29	200.92	172.71	204.34	80
550	176.13	207.76	179.55	211.18	80
600	183.82	215.46	187.24	218.88	80
Electrically Operated					
10–150	194.94	226.57	198.36	229.99	53
175	198.36	229.99	201.78	233.41	55
200	201.78	233.41	205.20	236.83	55
225	206.05	237.67	209.47	241.11	55
250	209.47	241.11	212.89	244.53	100
275	212.89	244.53	216.31	247.95	100
300	217.17	248.80	220.59	252.22	100
325	220.59	252.22	224.01	255.64	100
350	224.01	255.64	227.43	259.06	100
400	230.85	262.48	234.27	265.90	100
450	238.54	270.18	241.96	273.60	110
500	246.24	277.87	249.66	281.29	110
550	253.08	284.71	256.00	288.13	110
600	260.77	292.41	264.19	295.83	110

WESTINGHOUSE TYPE CL AIR CIRCUIT BREAKERS

TYPE CL-20—MANUAL OR ELECTRICAL

1, 2 and 3 Poles

Voltage Ratings: **250 V. A-C. or D-C.**, **600 V. A-C.** or **750 V. D-C.**
Current Ratings: 10 to 600 Amperes
Interrupting Rating: 20000 RMS Amperes

3-Pole Breakers

Ampere Rating	Manually Operated: 250 V. A-C.-D-C. 2-Coil	250 V. A-C.-D-C. 3-Coil	600 Volts A-C. 750 Volts D-C. 2-Coil	600 Volts A-C. 750 Volts D-C. 3-Coil	Shp. Wt. Lbs.
10–150	$171.85	$203.49	$176.98	$208.62	45
175	176.13	207.76	181.26	212.89	45
200	180.40	212.04	185.53	217.17	45
225	185.53	217.17	190.66	222.30	45
250	189.81	221.44	194.94	226.59	105
275	194.94	226.57	200.07	231.70	105
300	192.21	230.85	204.34	235.98	105
325	203.49	235.12	208.62	240.25	105
350	208.62	240.25	213.75	245.38	105
400	217.81	249.66	223.15	254.79	105
450	227.43	259.06	232.56	264.19	120
500	235.98	267.61	241.11	272.74	120
550	244.53	276.27	249.66	281.29	120
600	253.93	285.57	259.06	290.70	120
Electrically Operated					
10–150	248.80	280.44	253.93	285.57	105
175	253.08	284.71	258.21	289.84	105
200	275.35	288.99	262.48	294.12	105
225	262.48	294.12	267.61	299.25	105
250	266.76	298.39	271.89	303.52	210
275	271.89	303.52	277.02	308.65	210
300	274.45	307.80	281.29	312.93	210
325	280.44	312.07	285.57	317.20	210
350	285.57	317.20	290.70	322.33	210
400	294.97	326.61	300.10	331.74	210
450	304.38	336.01	309.51	341.14	210
500	312.93	344.56	318.06	349.69	210
550	321.48	353.11	326.61	358.24	210
600	330.88	362.52	336.01	367.65	210

All breakers have a range of tripping adjustment from 100% to 200% of rated current. Barriers are included in price of 600 Volt A-C. 750 Volt D-C. breakers.

MODIFICATIONS

Additions to Include

Shunt Trip Attachment	$21.37
Instantaneous Undervoltage Release	21.37
Trip Free Relay—Use when breaker is closed electrically by device whose contacts remain closed	34.20
Reverse Current Attachment: (Add to D-C. Breakers Only)	
10–200 Amperes	44.46
225–250 Amperes	47.02
275–300 Amperes	48.73
325–350 Amperes	51.30
400 Amperes	53.86
450–600 Amperes	58.32
Dead Front—Including steel cover plate, position indicator, extended handle, trip button and barriers:	
For Single-Pole Breakers	24.30
For 2 and 3-Pole Breakers	27.00
(For rotary handle and swinging panel type dead front construction, write for data and prices.)	
Extended Type Standard Handle, if required	No Addition
Larger Panels Than Minimum—Maximum thickness 2 inches. Add for each extra square foot required	1.71
Auxiliary Switch—Plunger Type:	
Single-Pole, Double-Throw	6.84
2-Pole, Double-Throw	14.10
Type W Rotary Switch—6 Point	21.36
(Data on extra stages on request.)	
Dual Overload—To give instantaneous trip on high overload to breakers equipped with ITL. (Data on request.)	

Deductions to Omit

Inverse-Time Limit Attachment and Overload Coil per pole	$31.63
Inverse-Time Limit Attachment Only, per pole	14.53

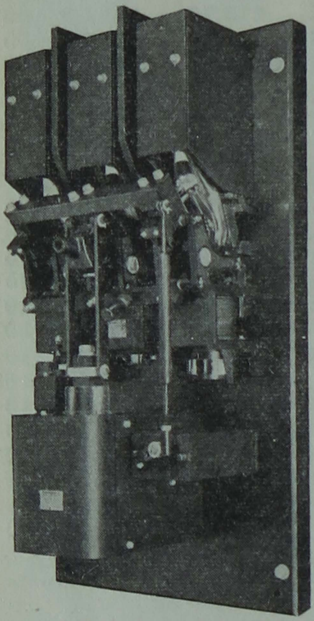
WESTINGHOUSE "DE-ION" AIR CIRCUIT BREAKERS

TYPE DA-50 LARGE "DE-ION" AIR CIRCUIT BREAKERS

One, Two, Three or Four Poles

Type DA Breakers are designed for all of the conventional types of mountings; live front, dead front, metal-enclosed rigid mounting, and metal-enclosed with draw-out feature. The draw-out type is the most modern and progressive design for enclosed air circuit breakers.

These new type air circuit breakers now make Westinghouse "De-ion" arc quenching protection available for commercial industrial circuits.



Electrically Operated DA-50 Air Breaker

Live Front type of breaker is mounted on the front of the panel with studs extending behind the panel.

Dead Front breaker includes breaker mounted on base that mounts on Customer's framework to support it behind the plane of the switchboard on which it is mounted. Includes side and top barriers, trip button, position indicator and rotary type operating handle that extends through the steel panel in front of the breaker. The front steel panel is included only when ordered.

The enclosed type for separate mounting, is similar to the dead front breaker except the front steel panel is part of a 5-sided cover that completely encloses the breaker. The standard arrangement also includes a pull box that completely encloses the studs in back of the breaker and has knockouts for bringing in cables. The pull box also provides means for mounting the complete breaker on a wall. The pull box may be omitted for other types of mounting.

A standard electrically operated breaker includes the breaker—solenoid closing mechanism —Rectox device if control source is a-c.—cutoff switch — shunt trip — control relay — a 7-circuit rotary type auxiliary switch — and a removable emergency operating handle. No position indicating lamps or control switches are included.

The standard overload calibration is 100 to 200 per cent of the full load rating of the breaker.

Cable terminals are included only on Enclosed breakers. When specified give size and number of cables per stud. They must be specified as extras on all other breaker arrangements.

Round studs are not available. Unless otherwise specified the top studs of a breaker will be supplied laminated horizontally and the lower studs laminated vertically.

WESTINGHOUSE "DE-ION" AIR CIRCUIT BREAKERS

TYPE DA-50—ONE POLE

Manually and Electrically Operated

600 Volts A-C.—250 Volts D-C., 750 D-C.*
100 to 1600 Amperes

Interrupting Capacity—50,000 RMS Amperes

Type DA air circuit breakers are trip free and include arc quenchers. Series overload trip coil with inverse time limit attachments (I.T.L.) is provided. Breakers are furnished standard on black lacquered ebony asbestos panels, but when specified, slate panels can be furnished at no extra cost.

Manually Operated breakers are supplied with trip button, and an insulated spade type handle on live front breakers. Dead front breakers have a rotary type handle.

Electrically Operated breakers include a d-c. (125 or 250 volts standard) solenoid, closing relay, emergency closing handle, shunt trip and 7-circuit auxiliary switch wired to a terminal block. A Rectox is furnished for a-c. application.

Terminals for live and dead front breakers, laminated terminals without connectors are standard.

Amp. Rating	Range of Trip Adjustment‡	Price	
		600 V. A-C. 250 V. D-C.	750 V. D-C.
	Manually Operated§—Live Front		
†100–600	100–200%	**$177.39**	**$209.79**
800	800–1600 Amp.	**203.31**	**235.71**
1000	1000–2000 Amp.	**244.62**	**277.02**
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	**311.85**	**344.25**
	Electrically Operated—Live Front		
†100–600	100–200%	**379.89**	**412.29**
800	800–1600 Amp.	**405.81**	**438.21**
1000	1000–2000 Amp.	**447.12**	**479.52**
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	**514.36**	**546.76**

TYPE DA-50—2 POLES

Amp. Rating	Range of Trip Adjustment‡	Price 600 V. A-C.—250 V. D-C.	
		1 Coil	2 Coil
	Manually Operated—Live Front		
†100–600	100–200%	**$260.01**	**$308.61**
800	800–1600 Amp.	**300.51**	**349.11**
1000	1000–2000 Amp.	**365.31**	**413.91**
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	**532.17**	**580.77**
	Manually Operated—Enclosed with Pull Box		
†100–600	100–200%	**388.80**	**437.40**
800	800–1600 Amp.	**430.40**	**477.90**
1000	1000–2000 Amp.	**494.10**	**542.70**
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	**660.96**	**709.56**
	Electrically Operated¶—Live Front		
†100–600	100–200%	**462.51**	**511.11**
800	800–1600 Amp.	**503.01**	**551.61**
1000	1000–2000 Amp.	**567.81**	**616.41**
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	**734.67**	**783.27**

*750-volt d-c. breakers—complete information on request.

†Standard ratings (100–600): 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, 400, 450, 500, 550 and 600 amps.

‡Special calibrations require an addition equal to 10 per cent of corresponding live front manually operated breaker.

§Prices and dimensions of totally enclosed breakers, with or without pull box, furnished on request.

¶Electrically operated enclosed breakers, prices and dimensions on request.

WESTINGHOUSE "DE-ION" AIR CIRCUIT BREAKERS

TYPE DA-50—3 POLES

Manually and Electrically Operated

600 Volts A-C.—250 Volts D-C., 750 D-C.*

100 to 1600 Amperes

Interrupting Capacity—50,000 RMS Amperes

Amp. Rating	Range of Trip Adjustment‡	Price 600 V. A-C.—250 V. D-C. 2 Coil	Price 600 V. A-C.—250 V. D-C. 3 Coil
Manually Operated—Live Front			
†100–600	100–200%	$404.19	$452.70
800	800–1600 Amp.	461.70	510.30
1000	1000–2000 Amp.	554.04	602.64
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	798.66	847.26
Manually Operated—Enclosed with Pull Box			
†100–600	100–200%	556.47	605.07
800	800–1600 Amp.	613.98	662.58
1000	1000–2000 Amp.	706.32	754.92
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	950.94	999.54
Electrically Operated¶—Live Front			
†100–600	100–200%	667.44	716.04
800	800–1600 Amp.	724.96	773.56
1000	1000–2000 Amp.	817.29	865.89
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	1061.91	1110.51

TYPE DA—4 POLES

Manually and Electrically Operated

600 Volts A-C.—250 Volts D-C., 750 D-C.*

100 to 1600 Amperes

Interrupting Capacity—50,000 RMS Amperes

Amp. Rating	Range of Trip Adjustment‡	Price 600 V. A-C.—250 V. D-C. 2 Coil	Price 600 V. A-C.—250 V. D-C. 4 Coil
Manually Operated—Live Front			
†100–600	100–200%	$511.92	$609.12
800	800–1600 Amp.	589.68	686.88
1000	1000–2000 Amp.	714.42	811.62
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	1040.04	1137.24
Manually Operated—Enclosed with Pull Box			
†100–600	100–200%	716.86	814.06
800	800–1600 Amp.	794.61	891.81
1000	1000–2000 Amp.	919.36	1016.56
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	1244.97	1342.17
Electrically Operated¶—Live Front			
†100–600	100–200%	811.62	908.82
800	800–1600 Amp.	889.38	986.58
1000	1000–2000 Amp.	1014.12	1111.32
1200	1200–2400 Amp.		
1600	1600–3200 Amp.	1339.74	1436.94

*750-volt d-c. breakers — complete information on request.

†Standard ratings (100–600): 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, 350, 400, 450, 500, 550, and 600 Amps.

‡Special calibrations require an addition equal to 10 per cent of corresponding live front manually operated breaker.

¶Electrically operated enclosed breakers, prices and dimensions on request.

WESTINGHOUSE "DE-ION" AIR CIRCUIT BREAKERS

TYPE DA FIELD SWITCHES—2 POLES

250 Volts D-C. — 750 Volts D-C.

800 to 2000 Amperes

Type	Amp. Rating	Manually Operated Live Front	Manually Operated Enclosed with Pull Box	Electrically Operated Live Front
DK	100–600	Prices on request		
DA	800	$306.18	$427.68	$487.62
DA	1000	370.98	492.48	552.42
DA	1200	370.98	492.48	552.42
DA	1600	535.41	656.91	730.62
DA	2000	777.60	....	982.53

MODIFICATIONS — DA-50 BREAKERS

Additions

Bases larger than standard add for extra area— 1½ in. or 2 in. thick, per sq. ft.	$ 2.43
Shunt Trip Attachment	28.36
Dual Magnetic Overload Trip, furnished when requested	No Charge
Undervoltage Release, self-resetting	
Instantaneous	28.36
Time Delay	40.50
Reverse Current Attachment (for d-c.)	101.26
Auxiliary Switch for manually operated breakers, normally open and normally closed (2 circuits)	9.73
For each additional circuit	3.24
Overcurrent Bell-Alarm Attachment (Hand or electrically reset	24.30
Dead Front Mounting for either manually or electrically operated breakers (250 v. d-c., 600 v. a-c.) includes position indicator barriers, trip button, and rotary handle:	
With steel cover plate	36.46
Without steel front plate, add per breaker	28.36
With formed hinged front panel	64.80

Deductions

Inverse Time Limit Attachment (I.T.L.), omit to secure instantaneous tripping	12.16
Overload Attachment and I.T.L., omit to secure non-automatic breaker	48.60
Pull Boxes (when omitted from enclosed breakers)	40.50

Information Required on Orders

Type DA-50. Number of Poles—One, two, three, four.

Type of Overload Attachment—Series overload trip. (Instantaneous or Time Delay) or Dual Magnetic Overload Trip. (If one of the listed types of overload tripping devices is not specified—the breaker will be furnished with a non-adjustable short circuit trip device).

Number of Overload Attachments — One, two, three, four.

Type of circuit—d-c. or a-c. (25-50 or 60 cycles) and line voltage.

Upper Studs—Vertically or Horizontally laminated.

Lower Studs—Vertically or Horizontally laminated.

Attachments

Shunt Trip—Specify a-c. or d-c. control voltage.

Undervoltage Release — (Instantaneous or Time Delay). Specify normal line voltage.

Reverse Current Trip — Specify control voltage.

Auxiliary Switch—Specify number of circuits required.

Overcurrent Bell Alarm.

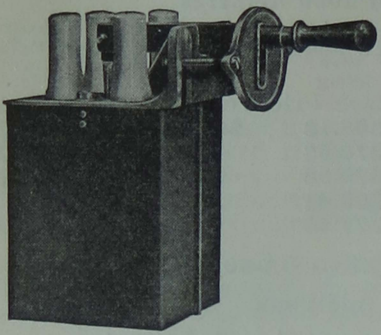
Field Discharge Contact.

WESTINGHOUSE TYPE I OIL CIRCUIT BREAKERS

MANUALLY OPERATED—NON-AUTOMATIC—INDOOR SERVICE
SINGLE AND DOUBLE-THROW

For Capacities Up to 60 Amperes 5000 Volts A. C.

Interrupting Capacity at Rated Voltage, 250 Amperes



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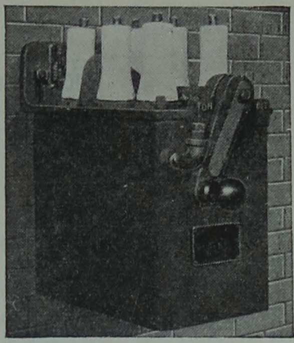

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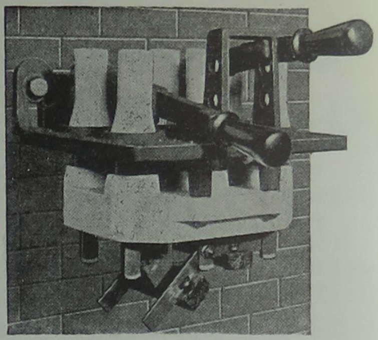


No. 226541

Application

The type I oil circuit breakers are two, three or four pole breakers for controlling inductive loads of small capacity on alternating current circuits. They are made for either panel or wall mounting and are either dust proof or dust and damp proof as listed. The dust and damp proof wall mounting forms are particularly adapted as service switches mounted in cellars, kiosks and outdoor switch houses, where the breaker is subjected to moisture but not exposed to the weather. The double throw breakers of this form are often used as service change over switches on block signal and other systems.

Operation

Non-automatic manually operated only. In general, they are opened and closed by one lever type handle, but the dust and damp proof switches, Nos. 226540 and 226541, have crank type handles. No. 226540 is a single throw three pole breaker having two positions, on and off, as in the regular form.

No. 226541 is a double throw two pole transfer breaker having three positions: (1) both throws on, (2) one throw on with the other throw off, and (3) first throw off with the second throw on.

The constant current lighting form of breaker No. 119372 has two handles. One handle operates a single pole used for short circuiting the constant current regulating device, the other operates two poles for controlling both sides of the line. This form of breaker is available for panel mounting only.

Construction

The panel mounting form of breaker is designed for mounting on the rear of the switchboard panel or iron frame bracket. The cover plate through which the handle projects is supplied for mounting on the front of the panel or bracket.

The wall mounting form of breaker is so constructed that the operating handle is mounted directly on the breaker frame and projects over the back of the case, thereby permitting the breaker to be mounted directly on a wall, or any convenient vertical support. This feature renders the breaker particularly adaptable for installation in places where no switchboard is available for mounting apparatus.

Tanks—The oil tanks are rectangular in shape and are made of heavy sheet steel. An insulating lining is used as an additional protection against arcing from current carrying parts to the tank metal.

Mechanism—The knife blade contacts are actuated by specially treated wooden rods connected to a lever which is operated by a handle outside of the breaker.

Terminal Bushings and Studs—The leads are brought out directly at the top of the breaker through porcelain bushings. Connections to the outside circuit are made inside the breaker by a socket terminal and a porcelain insulator is slipped over the joint, thus providing a straight continuous connection from the line with maximum insulation.

Contacts—Knife blade contacts are used as they insure the best contact in this class of breaker for low temperature rise.

Dust Proof Panel Mounting†
Single Throw

Cat. No.	Poles	Gal. Oil	Wt. Lbs.		Price Each
			Net	Shpg.	
119371	2	1	10	25	**$29.00**
123242	3	1½	15	35	**34.00**
119372‡	2‡	2	17	40	**35.00**
123243	4	2½	20	46	**46.00**

Dust Proof Wall Mounting
Single Throw

108099	2	1	10	25	**28.00**
108100	3	1½	15	35	**33.00**

Dust and Damp Proof Wall Mounting
Single Throw

226540	3	1½	17	40	**54.00**

Double Throw

226541	2	2	20	45	**60.00**

†Although the type I oil circuit breakers are insulated for 5000 volt service, engineering practice indicates that panel mounting breakers should not be used on service voltages higher than 2500 volts. These breakers are made for mounting on panels 2 inches thick. When they are to be mounted on thinner panels, spacers must be used on the mounting bolts.

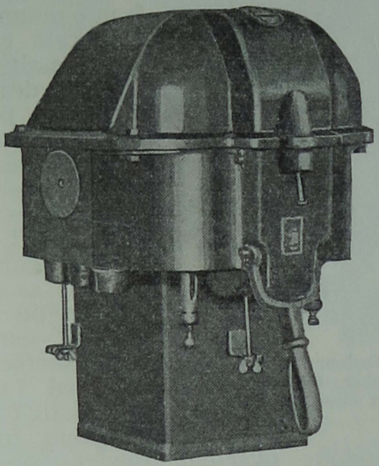
‡Special breaker for use on constant current lighting panels.

WESTINGHOUSE TYPE F-10 OIL CIRCUIT BREAKERS

MANUALLY-OPERATED NON-AUTOMATIC AND AUTOMATIC

For Indoor Service, Single-Throw

For Capacities up to 300 Amperes, 2500 Volts; Alternating Current. Interrupting 10,000 Kv-a. (Unless Otherwise Stated Ratings Are on a 60-Cycle Basis).



The type F-10 oil circuit breakers are for indoor service primarily in industrial applications. These breakers should not be connected on incoming lines where they will be subject to surges of other voltage disturbances, unless they are protected by lightning arresters or other such protective devices.

Because of the excessive moisture and drippings adherent to mines, these drip-proof breakers are being used extensively on low-capacity and low-voltage breakers in such service.

Among the features which distinguish the type F-10 breakers are: A novel design of contact so shaped that different parts of the same contact surface act as the main current-carrying contact and as the arcing contact, but the arcing contact surface is so located as to prevent arcing on the main current-carrying contact surface.

The ease of changing from non-automatic to automatic breakers by the addition of the various overload devices only.

Convenient location of trip coils making calibration adjustment accessible.

Inability to hold full-automatic breaker in closed position against predetermined conditions of tripping. Dust-proof and drip-proof but not weather-proof. Standard breakers are sufficiently dust-proof for use in textile mills and similar service. For more severe applications, such as cement or flour mills where very fine dust is encountered, the standard breakers should be equipped with gaskets.

The tank is equipped with liners of high-grade insulating material. The construction of this breaker is such that the entire equipment may be assembled and lined up, and the contacts and auxiliaries adjusted either below or above the frame before the tank or cover is placed in position.

WESTINGHOUSE TYPE F-10 OIL CIRCUIT BREAKERS

MANUALLY-OPERATED NON-AUTOMATIC AND AUTOMATIC

For Indoor Service, Single-Throw

Continued

TYPE F-10 INDOOR

Interrupting Capacity

Cat. No.	Maximum Continuous Amperes at 60 Cycles	Maximum Volts	Short-time Ratings RMS Total Amperes 1 Sec.	5 Sec.	Interrupting Ratings RMS Total Amps. at Rated Voltage 2500 Volts
		2-Pole			
591694	60	2500	†50	†25	2400
437890	200	2500	†50	†25	2400
437891	300	2500	†50	†25	2400
		3-Pole			
591695	60	2500	†50	†25	2400
437892	200	2500	†50	†25	2400
437893	300	2500	†50	†25	2400
		4-Pole			
591696	60	2500	†50	†25	2400
437894	200	2500	†50	†25	2400
437895	300	2500	†50	†25	2400

Non-Automatic Unit Without Attachments

Cat. No.	Maximum Continuous Amperes at 60 Cycles	Maximum Volts	Gal. Oil	*Approx. Shpg. Wt. Lbs.	Price Each
		2-Pole			
591694	60	2500	2¾	116	**$49.00**
437890	200	2500	2¾	120	**62.00**
437891	300	2500	2¾	125	**99.00**
		3-Pole			
591695	60	2500	2¾	119	**62.00**
437892	200	2500	2¾	125	**74.00**
437893	300	2500	2¾	130	**121.00**
		4-Pole			
591696	60	2500	3¼	145	**111.00**
437894	200	2500	3¼	150	**126.00**
437895	300	2500	3¼	165	**193.00**

AUXILIARIES FOR F-10 BREAKERS

Series-Trip Coil Attachment Complete

2500 Volts Maximum

Cat. No.	Amps.	Shpg. Wt. Lbs.	Price Each	Cat. No.	Amps.	Shpg. Wt. Lbs.	Price Each
362045	5	3¼	**$6.00**	**666089**	60	3¼	**$6.00**
423500	7	3¼	**6.00**	**423502**	75	3¼	**6.00**
362046	10	3¼	**6.00**	**362050**	100	3¼	**6.00**
362047	15	3¼	**6.00**	**362051**	150	3¼	**6.00**
362048	25	3¼	**6.00**	**362052**	200	3¼	**6.00**
423501	35	3¼	**6.00**	**362295**	300	3¼	**6.00**
362049	50	3¼	**6.00**	....	......	......	......

Series-Trip Coil with Inverse-Time-Limit Attachment

2500 Volts Maximum

Cat. No.	Amps.	Shpg. Wt. Lbs.	Price Each	Cat. No.	Amps.	Shpg. Wt. Lbs.	Price Each
362296	5	3½	**12.00**	**666088**	60	3½	**12.00**
423503	7	3½	**12.00**	**423505**	75	3½	**12.00**
362297	10	3½	**12.00**	**362301**	100	3½	**12.00**
362298	15	3½	**12.00**	**362302**	150	3½	**12.00**
362299	25	3½	**12.00**	**362303**	200	3½	**12.00**
423504	35	3½	**12.00**	**362304**	300	3½	**12.00**
362300	50	3½	**12.00**	....	......	......	....

*Weight does not include oil. Net weight of oil is approximately 7½ pounds per gallon; shipping weight, 9 pounds.

†Number of times coil rating.

WESTINGHOUSE TYPE F-10 OIL CIRCUIT BREAKERS

MANUALLY-OPERATED NON-AUTOMATIC AND AUTOMATIC

For Indoor Service, Single-Throw

AUXILIARIES FOR F-10 BREAKERS

Continued

Hand-Reset Undervoltage Release Attachment Complete

Volts	Approx. Shpg. Wt. Lbs.	Alternating Current			
		25 Cycles		60 Cycles	
		Cat. No.	Price Each	Cat. No.	Price Each
100	4½	437900	$24.00	437899	$24.00
220	4½	437901	24.00	437900	24.00
440	4½	437902	24.00	437901	24.00
550	4½	437903	24.00	437901	24.00
110–550¶	4½	1019282	24.00	1019282	24.00
Automatic-Reset Undervoltage Release Attachment Complete					
110	4½	504630	24.00	504629	24.00
220	4½	504631	24.00	504630	24.00
440	4½	504632	24.00	504631	24.00
550	4½	504633	24.00	504631	24.00
‡Electric Lockout Device Complete					
110	6	504635	35.00	504634	35.00
220	6	504636	35.00	504635	35.00
440	6	504637	35.00	504636	35.00
550	6	504638	35.00	504637	35.00
§Shunt-Trip Attachment Complete					
110	4½	841862	6.00	665997	6.00
220	4½	665995	6.00	841862	6.00
440	4½	665996	6.00	665995	6.00
550	4½	665996	6.00	665995	6.00

§Shunt-Trip Attachment Complete

For Direct Current Service

Cat. No.	Volts	Wt. Lbs.		Price Each
		Net	Shpg.	
665994	125	4	4½	$6.00
665995	250	4	4½	6.00
665996	500	4	4½	6.00

MISCELLANEOUS AUXILIARIES

Cat. No.	Breaker		Approx. Ship. Wt., Lbs.	Price Each
	Amperes	Volts		
Voltage Transformers—2500/110 Volts, 25 and 60 Cycles				
464736	All	2500	15	$12.00
Ammeter with Mounting Cover—2 and 3-Pole				
437897*	All	All	45	44.00
Ammeter with Mounting Cover—4-Pole				
437898*	All	All	50	44.00
Conduit Box†				
437909	All	All	32	9.00
Auxiliary Switch with Mounting Bracket for use when Undervoltage or Electric Lockout Attachments are not used				
491372	All	All	1¾	6.00
Auxiliary Switch for Use on Shunt-Trip Attachment				
693657	All	All	1¾	6.00
Auxiliary Switch with Mounting Bracket—For Use When the Undervoltage or Electric Lockout Attachments are Not Used				
519295	All	All	3	6.00
Position Indicator and Mechanical Lockout Device				
437910	All	All	----	8.35
Position Indicator Only				
437911	All	All	----	8.00
Mechanical Lockout Device				
437912	All	All	----	4.40

*Catalog No. includes cover only.

†In addition, order 4, 6 or 10 blanking washers No. 767231 for 2, 3 or 4-pole breakers respectively.

‡Auxiliary switch is included in number.

§If desired, this attachment can be equipped with auxiliary switch listed in the table on auxiliaries.

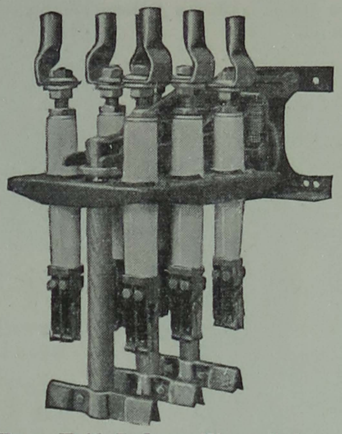
¶For use with capacitor time delay device.

WESTINGHOUSE TYPE F-11 OIL CIRCUIT BREAKERS

MANUALLY AND ELECTRICALLY OPERATED

Non-Automatic and Automatic, for Indoor Service Single and Double-Throw

200 or 400 Amperes, 5000 Volts. Interrupting Ratings 15,000 Kv-a.



Type F-11 Indoor, Three-Pole, Single-Throw, 400-Ampere, 5000-Volt Breaker Unit

Made for switchboard panel mounting or panel-frame mounting; or for remote-control, wall or pipe-frame mounting forms. Moderate capacity, 2, 3 or 4 poles. Contacts are so designed that different portions of the same contact surface act as the main current-carrying contact and as the arcing contact. The arcing contact surface is so located as to prevent arcing on the main current-carrying contact surface. Easily changed from non-automatic to automatic breakers by addition of the various overload devices only. Easily changed from panel-mounting breaker to remote-control, wall-mounting breaker by the addition of bell cranks—or to a remote-control, pipe-mounting breaker by the addition of bell cranks and pipe-mounting brackets. Full-automatic breakers cannot be held closed against predetermined conditions of tripping. Poles are isolated by insulating tank lining and partitions.

For manual operation, coverplate containing the operating handle is supplied for mounting on a panel or panel bracket. Coverplate and auxiliaries are listed separately from the breaker unit. By addition of proper coverplate or coverplate and bell cranks together with attachments, any type of mounting or operation can be provided. Where necessary, the breaker unit mechanism is easily changed from the standard arrangement of upward push to downward pull operation without additional material.

Breaker frame of single-throw, 2 and 3-pole breakers is made of punched and formed sheet steel. All other frames are heavy cast iron. Single-tank-per-breaker construction containing all poles is used. The heavy sheet-iron rectangular tanks have all seams lap-welded. Bottom flanged and welded on outside of tank. Insulating partitions form separate compartments for each pole. Lifting lever, attached to a punched cross-bar, clamps to specially treated wood operating rods, and is actuated through a toggle so constructed that pressure on the contacts at the end of the moving contact travel is easily overcome during the closing operation.

Copper tube terminals are supplied on all breakers. Moving contacts are of wedge type. Punched copper contacts or blades are bolted and pinned to wedge-shaped end of operating rod, effectively preventing slipping. Stationary contacts consist of fingers arranged in pairs and facing each other. Contact tips on ends of fingers supported on thin, flat steel springs. Contact spring shunted by copper-leaved shunt. Contact pressure obtained by a second and heavier flat steel spring.

WESTINGHOUSE TYPE F-11 OIL CIRCUIT BREAKERS

MANUALLY AND ELECTRICALLY OPERATED

Non-Automatic and Automatic, for Indoor Service Single and Double-Throw

200 or 400 Amperes, 5000 Volts.
Interrupting Ratings 15,000 Kv-a.

Cat. No.* Bare Breaker	Kv.	Amp.	Poles	Throw	Gal. of Oil	Shp. Wt. Lbs. Without Oil† Direct Control	Remote Control
300684	5	200	2	S	3½	75	85
300685	5	200	3	S	3½	85	95
438130	5	200	4	S	5½	160	165
477612	5	200	2	D	5¾	175	195
477613	5	200	3	D	5¾	190	210
438132	5	200	4	D	8¼	240	260
300686	5	400	2	S	3½	80	90
300687	5	400	3	S	3½	90	100
438131	5	400	4	S	5½	165	170
477614	5	400	2	D	5¾	180	200
477615	5	400	3	D	5¾	195	215
438133	5	400	4	D	8¼	245	265

	Price Each				
	Manually Operated Non-Automatic				
Cat. No.* Bare Breaker	Panel Mounting	Pipe or Panel Frame Direct Control	Remote Control Wall or Pipe Mounting	SA-2 Solenoid Operated	Rectox-Solenoid Operated
300684	$ 68.00	$ 78.00	$ 98.00	$173.00	$238.00
300685	80.00	90.00	110.00	185.00	250.00
438130	120.00	130.00	150.00	225.00	290.00
477612	136.00	156.00	196.00	....	....
477613	160.00	180.00	220.00	....	....
438132	240.00	260.00	300.00	....	....
300686	85.00	95.00	115.00	190.00	255.00
300687	100.00	110.00	130.00	205.00	270.00
438131	150.00	160.00	180.00	255.00	320.00
477614	170.00	190.00	230.00	....	....
477615	200.00	220.00	260.00	....	....
438133	300.00	320.00	360.00	....	....

*Catalog number covers bare breaker only. Other parts must be ordered as noted under "Ordering Instructions."

†Net weight of oil is approximately 7½ pounds per gallon, shipping weight 9 pounds.

Note: The following auxiliary switches are included as standard on the following solenoids and the maximum number of trip coils that can be included with the tripping attachment:

SAF-2 solenoid includes 4-pole rotary switch (total of 4 coils and 1 undervoltage).

SA-3 solenoid includes 4-pole rotary switch (total of 3 coils and 1 undervoltage).

COVERPLATES, BELL CRANKS AND MOUNTING BRACKETS

Included in price for complete breaker as listed. See "Ordering Instructions." Prices, as replacement parts, on request.

Cat. No.	Description
1040931	Coverplate, Single-Throw, 2-Coil‡
1040932	Coverplate, Single-Throw, 3-Coil‡
1040933	Coverplate, Double-Throw, 3-Coil‡
1040934	Motor-Starting Coverplate, D-T, 3-Coil; Left Side Non-Automatic, Right Side Automatic
1043455	Bell Cranks (set)§
478301	Panel-frame Mounting Brackets for Single-Throw Breaker¶
479302	Panel-frame Mounting Brackets for Double-Throw Breaker¶

‡Coverplates have space for but do not include coils as specified.

§Remote control is obtained by adding these bell cranks to a switchboard mounting set-up. One set required for single-throw and two for double-throw.

¶Panel frame mounting may be obtained by adding these brackets to a switchboard mounting set-up.

WESTINGHOUSE TYPE F-11 OIL CIRCUIT BREAKERS

MANUALLY AND ELECTRICALLY OPERATED

Non-Automatic and Automatic, for Indoor Service Single and Double-Throw

200 or 400 Amperes, 5000 Volts.
Interrupting Ratings 15,000 Kv-a.

ACCESSORIES AND ATTACHMENT PRICES FOR MANUALLY-OPERATED TYPES F-11 AND F-122 BREAKERS

Cat. No.	Description	Price Each
1081469	5-Amp. Transformer-Trip Coil (instantaneous) Complete	**$6.00**
296773	5-Amp. Transformer-Trip Coil (inverse-time-limit) Complete	**11.00**
296781	5-Amp. Transformer-Trip Coil (with direct-trip) Complete	**25.00**
333061	Mechanical Sequence Interlock	**45.00**
333059	Mechanical Interlock for 2-handle Coverplate	**15.00**
333060	Mechanical Interlock for 2, Single-handle Coverplates, on 13½-inch Centers	**15.00**
300796	Panel Bracket for Single-Throw Breaker, 2-Coil	*
751559	Panel Bracket for Single-Throw Breaker, 3-Coil	*
300790	Panel Bracket for Double-Throw Breaker	*
296764	Pipe-Mounting Brackets	*
296797	Auxiliary Switch	**6.00**
....	2-stage rotary-type Auxiliary Switch (additional stages **$3.00** each additional)	**13.00**
296798	Bell Alarm Switch	**3.00**
296799	Supporting Framework for Single-Throw Breaker	**15.00**
296800	Supporting Framework for Double-Throw Breaker	**15.00**
1019254	Windlass Type Tank-Lifter (for F-122 Breakers)	**68.00**

*Included in price for complete breaker as listed. See "Ordering Instructions." Prices as replacement parts on request.

SHUNT-TRIP ATTACHMENT COMPLETE WITH COIL

Direct Current		Alternating Current			
		25-Cycle		60-Cycle	
Volts	Cat. No.	Volts	Cat. No.	Volts	Cat. No.
12	**1081470**	......	....	......	....
24†	**1081471**	110	**1081474**	100	**1081471**
48	**1081472**	......	....	......	....
125	**1081473**	220	**1081475**	220	**1081474**
250	**1081475**	440–550	**1081476**	440–550	**1081475**
500	**1081476**	......	....	......	....

Price Each: **$6.00**

†At 24 volts, this mechanism requires 9 amperes for tripping.

ELECTRIC LOCKOUT ATTACHMENT COMPLETE

25-Cycle		60-Cycle		
Volts	Cat. No.	Volts	Cat. No.	Price Each
110	**333055**	110	**333054**	**$37.00**
220	**333056**	220	**333055**	**37.00**
440	**333057**	440	**333056**	**37.00**
550	**333058**	550	**333056**	**37.00**

WESTINGHOUSE TYPE F-11 OIL CIRCUIT BREAKERS

MANUALLY AND ELECTRICALLY OPERATED

Non-Automatic and Automatic, for Indoor Service

Single and Double-Throw

200 or 400 Amperes, 5000 Volts
Interrupting Ratings 15,000 Kv-a.

INSTANTANEOUS UNDERVOLTAGE RELEASE ATTACHMENT COMPLETE

	25-CYCLE Catalog Number		60-CYCLE Catalog Number	
Volts	With Resistance	Without Resistance	With Resistance	Without Resistance
		Hand Retrieve		
110	**1019466**	**1019455**	**1019460**	**1019454**
177	**1019471**	....	**1019461**	....
220	**1019467**	**1019456**	**1019462**	**1019455**
360	**1019468**	....	**1019463**	....
440	**1019469**	**1019457**	**1019464**	**1019456***
550	**1019470**	**1019458**	**1019465**	**1019457***
		Automatic Retrieve†		
110	....	**1019449**	....	**1019448**
220	....	**1019450**	....	**1019449**
440	....	**1019451**	....	**1019450**
550	....	**1019452**	....	**1019453**

Price Each: **$32.00.**

*The same coil is used in this case for 440 and 550 volts.

†These can be used with motor-starting combinations or with any of the standard single-throw or double-throw coverplates. When used with a single-throw, 3-coil coverplate a special adapter, Catalog Number 379973, is required.

ELECTRIC OPERATING MECHANISMS FOR F-11 AND F-122 CIRCUIT BREAKERS

Included in price for complete breaker. See "Ordering Instructions."

Type	Mechanism	Mounting
SAF-2	Solenoid	Wall
SAF-2	Solenoid	Pipe
SAF-2	Solenoid	Floor

D-C. operated, mechanically trip-free, complete with closing solenoids, auxiliary switch and shunt-trip coils only. For accessories for automatic operation, see table: "Accessories and Attachment Prices for Manually-Operated Types F-11 and F-122 Breakers."

ATTACHMENTS FOR TYPE SAF-2 AUTOMATIC SOLENOID-OPERATED MECHANISMS

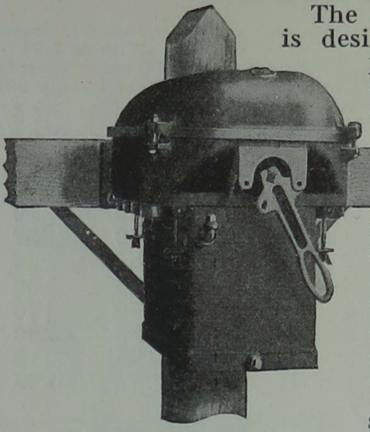
Cat. No.	Description	Price Each
1043732	4-Coil Tripping Attachment (without coils)	**$25.00**
1043733	5-Amp. Transformer-Trip Attachment (instantaneous)	**6.00**
1043734	5-Amp. Transformer-Trip (inverse-time-limit)	**11.00**
1019257	Instantaneous Undervoltage Trip Attachment‡	**32.00**
1014377	Hand Closing Lever	**7.00**

‡Catalog number includes 12-volt d-c. coil as standard. Control voltage must be specified.

WESTINGHOUSE TYPE FO-11 OIL CIRCUIT-BREAKERS

OUTDOOR MANUALLY-OPERATED, NON-AUTOMATIC, SINGLE-THROW

For Capacities Up to 400 Amperes, 5000 Volts
60 Cycles—Multi-Pole
Interrupting Capacity at Rated Voltage—600 Amperes



Type FO-11 Outdoor
3-Pole, Single-Throw Breaker

The type FO-11 breaker is designed with weatherproof fittings for general use in service exposed to all weather conditions. The fittings are also dust-proof rendering the breaker suitable for mill or mine service and for wall or pole-mountings on all service lines within its rating. This breaker is furnished 1, 2, 3 and 4-pole, single-throw.

The type FO-11 breakers are equipped with the same finger and wedge-type of contacts as are used in the F-11 breakers. They are so shaped that different portions of the same contact surface serve as main current carrying contacts and also as arcing contacts. The arcing contact surface, however, is so located as to prevent arcing on the main current carrying contact surface. The closed position of the breaker is locked by toggle link passing over center.

These breakers are furnished non-automatic single-throw only. The open or closed position is indicated by the position of the operating handle. Type FO-11 breakers should be used only for disconnecting purposes and not to interrupt circuits.

The type FO-11 breaker tank is of heavy sheet steel supported by swivel bolts and wing nuts, assuring easy removal for inspection. The entrance bushings are of porcelain cemented in place in the bottom of the frame. Frame and cover are made of heavy cast-iron.

The general construction of the type FO-11 breaker is very sturdy. The contact details are the same as supplied on the standard F-11 breakers. These contact details and the operating mechanism are mounted on a substantial frame.

Style numbers include breakers as listed without oil, but listed prices include oil. These breakers should not be installed on lines subject to surges above the insulation test values given the A.I.E.E. standards unless protected by lightning arresters or other surge protective devices.

Wall or Pole Mounting—Single-Throw

Mfrs. No.	Max. Continuous Amps.	Maximum Volts	Poles	Gal. Oil	Shpg. Wt.Lbs.	Price Each
504244	200	5000	2	4	137	**$78.00**
504246	200	5000	3	4	154	**94.00**
504248	200	5000	4	5	200	**127.00**
476499*	400	5000	1	1¾	100	**77.00**
504245	400	5000	2	4	150	**99.00**
504247	400	5000	3	4	170	**113.00**
504249	400	5000	4	5	215	**157.00**

Remote Control

Remote Control Operating Details	**21.00**

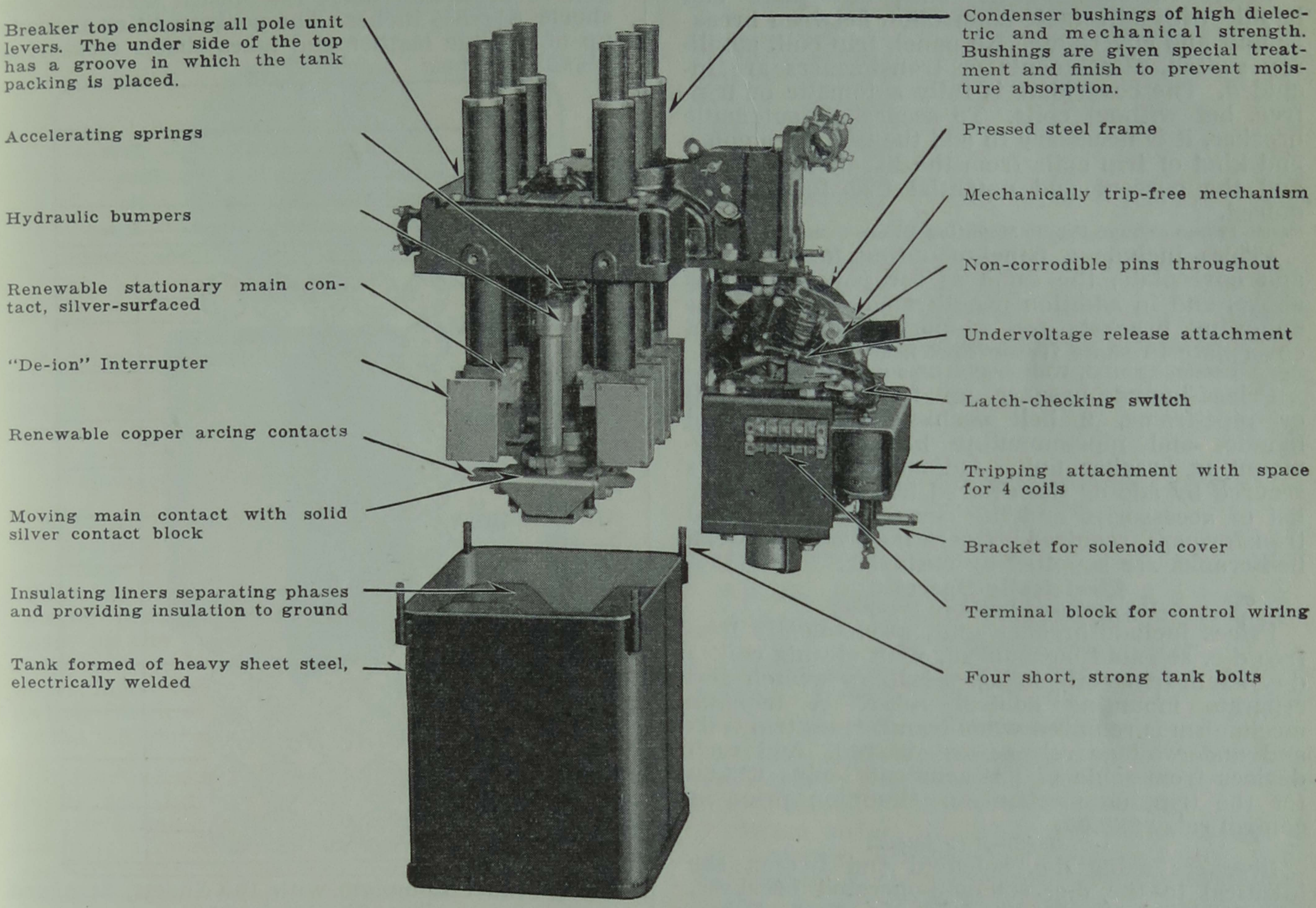
*This breaker is a pole top oil sectionalizing switch.

WESTINGHOUSE TYPE F-122 OIL CIRCUIT BREAKERS

MANUALLY OR ELECTRICALLY OPERATED

Single Throw—Non-Automatic or Automatic, for Indoor Service

400 and 600 Amperes, 7500 Volts—800 Amperes, 5000 Volts
Interrupting Rating: 25,000 Kv-a.


Breaker top enclosing all pole unit levers. The under side of the top has a groove in which the tank packing is placed.
Accelerating springs
Hydraulic bumpers
Renewable stationary main contact, silver-surfaced
"De-ion" Interrupter
Renewable copper arcing contacts
Moving main contact with solid silver contact block
Insulating liners separating phases and providing insulation to ground
Tank formed of heavy sheet steel, electrically welded
Condenser bushings of high dielectric and mechanical strength. Bushings are given special treatment and finish to prevent moisture absorption.
Pressed steel frame
Mechanically trip-free mechanism
Non-corrodible pins throughout
Undervoltage release attachment
Latch-checking switch
Tripping attachment with space for 4 coils
Bracket for solenoid cover
Terminal block for control wiring
Four short, strong tank bolts

Type F-122 Solenoid-Operated Breaker with Tank Removed from the Breaker and Cover Removed from the Type SAF-2 Solenoid

Manual or electrical operation with adaptable mounting arrangements makes these breakers especially desirable where minimum space is available.

Single-throw circuit breakers are standard, but 4-pole single-throw and 2, 3 and 4-pole double-throw breakers can be supplied, subject to negotiation.

				Shipping Wt. Lbs. Without Oil				Price Each				
				Manual Operated				MANUALLY OPERATED, NON-AUTOMATIC				
Kv.	Amps. 60 Cycles	Poles	Gal. Oil	Panel Mtd.	Remote Control	Solenoid Operated	Cat. No.* Bare Breaker	Panel Mounted	Pipe or Panel Frame Direct Control	Wall or Pipe Mtg. Remote Control	Solenoid Operated	Rectox Solenoid Operated
7.5	400	2	6	225	235	345	**1019481**	**$129.00**	**$139.00**	**$159.00**	**$244.00**	**$309.00**
7.5	400	3	6	245	255	365	**1019482**	**152.00**	**162.00**	**182.00**	**267.00**	**332.00**
7.5	600	2	6	225	235	355	**918726**	**147.00**	**157.00**	**177.00**	**262.00**	**327.00**
7.5	600	3	6	245	255	375	**918727**	**173.00**	**183.00**	**203.00**	**288.00**	**353.00**
5.0	800	2	6	195	205	330	**918729**	**170.00**	**180.00**	**200.00**	**285.00**	**350.00**
5.0	800	3	6	215	225	350	**918730**	**200.00**	**210.00**	**230.00**	**315.00**	**380.00**

*Catalog number covers bare breaker only. Other parts must be ordered as noted under "Ordering Instructions" for Type F-11.

Undervoltage and Electric Lockout Attachment Coils for Manually-Operated Breakers

(Prices quoted in table below are addition prices to complete breakers only, and are not to be used for replacement parts.)

Alternating Current			Direct Current			Alternating Current			Direct Current		
Volts	25-Cy. Cat. No.	60-Cy. Cat. No.	Volts	Cat. No.	Price Each	Volts	25-Cy. Cat. No.	60-Cy. Cat. No.	Volts	Cat. No.	Price Each
110	**476882**	**148908**	125	**519368**	**$6.00**	440	**165220**	**807703**	......	....	**$6.00**
220	**148907**	**476882**	250	....	**6.00**	550	**201482**	**241504**	......	....	**6.00**

WESTINGHOUSE OIL CIRCUIT BREAKERS

ORDERING INSTRUCTIONS

For Types F-11 and F-122

Manually-Operated

Panel-Mounting Breakers

Prices include breaker unit, coverplate and handle with adjustable connection between breaker unit and coverplate. No panel, trip coil, auxiliary switch, attachments or transformers are included. The coverplate is fully automatic or trip-free, but without coils. To secure an automatic breaker, it is necessary to add the desired number and kind of trip coils from the list of accessories and the current and potential transformers required.

Panel-Frame or Pipe-Frame Mounting Direct-Control Breakers

Prices include a panel-mounting breaker unit and coverplate, the same as for panel-mounting above, and in addition panel-frame or pipe-frame mounting brackets for supporting breaker and coverplate to same frame that holds panel.

Remote-Control, Wall or Pipe-Mounting Brackets

Prices include breaker unit for bolting to wall or pipe-frame, 2 bell cranks, coverplate and handle, and pipe-mounting brackets for pipe-mounting breaker unit. Automatic breakers are secured by adding the desired trip coils from the list of accessories and the current and potential transformers required. Operating rods between bell-cranks are supplied by customer.

Electrically-Operated

D-C. Solenoid-Operated Breakers

Prices include breaker unit, mechanically trip-free d-c. solenoid mechanism, with closing coil, a d-c. shunt-trip coil, 4-stage auxiliary switch and separate mounting control relay. A tripping mechanism is required when transformer trip coils and undervoltage release are desired. Add such devices from table of "Attachments" plus **$25.00** for the tripping mechanism. Omission price of control relay **$25.00.**

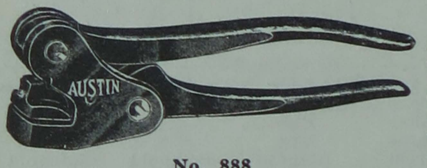
A-C. Operated Breakers

Breakers using d-c. solenoid and Rectox are identical to the d-c. solenoid-operated breakers, and the same attachments may be added. Prices include plate-type Rectox and control panel for separate mounting.

All breaker prices include Wemco insulating oil and terminals.

AUSTIN METER SEALING TOOLS

METER SEALING TOOLS



No. 888

The Austin meter sealing tool is only 6½ inches in length, therefore, easy to carry in the pocket and yet, the specially designed compound lever makes it one of the most practical tools of its kind. Can be furnished with engraved letters or numbers if specified.

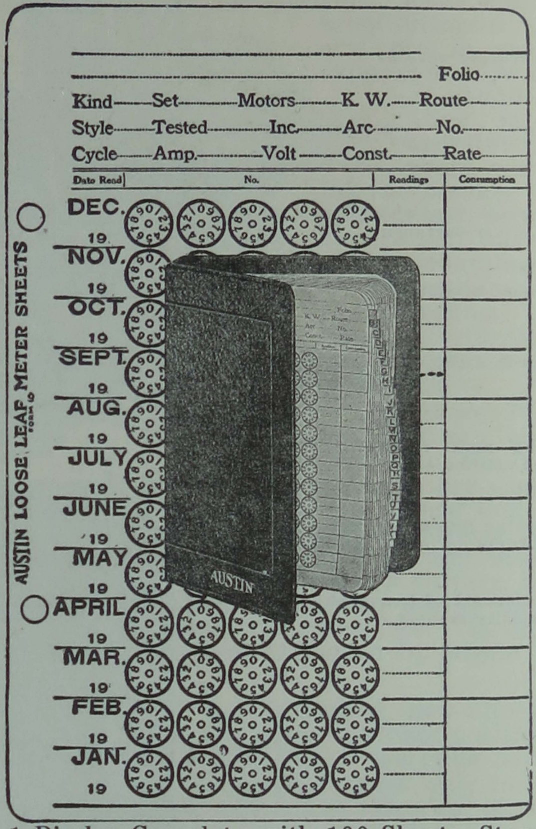
Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt. Oz.	Price Each
With Blank Dies				
888	1	1	14	$9.50
With One Die Blank and One Die Engraved				
8881	1	1	14	10.80
With Both Dies Engraved				
8882	1	1	14	12.25

METER SEALS

Mfrs. No.	Length In.	Unit Pkg.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Per 1000
1224	4	1000	5000	7	$8.00
1226	6	1000	5000	7½	8.75
1228	8	1000	5000	8	9.75
1230	10	1000	5000	9	11.00

AUSTIN METER BOOKS

Austin Meter Books are equipped with the celebrated I. P. adjustable nickel plated binder, which permits the book to be opened flat at any point for the removal or insertion of sheets without in any manner disturbing the other sheets. The standard size is cloth bound with leather backs and corners, and takes the Austin standard size sheets, 8½x5½ inches. The pocket edition is made up of flexible leather and takes sheets measuring 5½x3½ inches.



Mfrs. No.	Unit Pkg.	Std. Pkg.	Wt.Lb. Std.Pkg.	Price Each
No. 1 Binder Complete with 100 Sheets, Standard Size, 8½x5½ Inches				
1-C	1	12	21	$5.65
No. 2 Binder Complete with 200 Sheets, Standard Size, 8½x5½ Inches				
1-O	1	12	28	7.15
No. 1 Binder Only, Cloth Bound, Leather Backs and Corners				
2-C	1	12	9	4.25
No. 2 Binder Only, Cloth Bound, Leather Backs and Corners				
2-O	1	12	10	4.90
†Meter Sheets, 8½x5½ Inches, Standard Size, Form No. 100				
100	500	2500	15	1.90
‡Linen Tabbed Indexes Extra for Nos. 1 and 2 Binders				
12-I	1	12	3	2.65
*No. 3 Flexible Leather Pocket Binders with 100 Sheets, 5½x3½ Inches				
3-C	1	12	6½	5.25
No. 3 Flexible Leather Pocket Binders Only				
3-O	1	12	4	4.50
†Extra Sheets 5½x3½ Inches for No. 3 Binder, Form No. 10				
10	500	2500	5	1.75
‡Linen Tabbed Indexes for No. 3 Binder				
3-I	1	12	1½	2.25

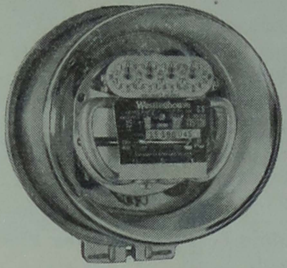
†Price per 100 sheets.
‡Price per set.
*Capacity 150 Sheets.

All orders for books or sheets will be filled with standard size unless otherwise expressly stipulated

WESTINGHOUSE WATTHOUR METERS

TYPE CS UNIVERSAL DETACHABLE WATTHOUR METERS

Single-Phase — Alternating Current
For Outdoor and Indoor Use



A detachable type of meter that provides accurate registration, assures complete protection, and can be used with present methods of conduit and flexible armored wiring systems. Meter socket remains permanently in position, permitting meter to be changed as readily as a light bulb.

Meets all requirements of the new sequence wiring systems. Its use materially reduces cost of re-wiring houses for new loads, such as ranges and water heaters. For example, a range service can be installed economically by mounting the meter on the outside wall of the kitchen and the range service brought directly through wall from meter. Meter can then be connected to the existing switch facilities through a separate outlet in the socket without disturbing the old wiring.

Indoor meters can be converted to outdoor service by transferring the old meter element to the new detachable meter base plate, thus making a complete armor-mounted detachable meter. Developed primarily for **outdoor** mounting in order to obtain the greatest accessibility for reading and to minimize opportunities for tampering or diversion. Used in urban centers and on rural line extensions, at summer resorts and other transiently-occupied homes, into which it is often difficult to attain access.

Suitable for single or multiple **indoor** installations, and can be adapted to switchboard or other panel mountings. When used in multiple dwellings or apartment houses, wiring may be carried to and from meters in common conduits or steel channels, making a safe, tamper-proof installation. Meter is practically 100 per cent accurate from very light load to 400 per cent overload. All steel parts are specially finished to prevent corrosion. Register gears, pinions and shafts are gold plated, and frames nickel plated. Sockets are made of heavy-section, die-cast aluminum alloy.

Catalog number and list price include meter complete with glass cover and hanger lug but without socket. Ten- and 25-ampere meters can be supplied when specified. Prices of 10-ampere meters are same as for 15-ampere ratings, and the 25-ampere meters are the same as for the 50-ampere ratings. Catalog number and price of type S socket includes socket complete with terminal block and sealing ring. Bus line terminals are supplied at **$0.10** net extra per socket for those with either 2 threaded outlets, or 2 threaded outlets and knockout in back. Bus line terminals are furnished as standard with sockets having 3 threaded outlets and knockout in back, and with ring sockets.

WESTINGHOUSE WATTHOUR METERS

TYPE CS UNIVERSAL DETACHABLE WATTHOUR METERS

TYPE CS DETACHABLE METERS‡

Socket Not Included—Glass Covers Only

Cat. No. 50 Cycle	Cat. No. 60 Cycle	Volts	Amps.	Nominal Kw.	Price Each
2-Wire—Self-Contained					
821526	**821541**	120	5	0.5	**$11.55**
821527	**821542**	120	15	1.5	**11.55**
821528	**821543**	120	50	5.0	**16.40**
821529	**821544**	240	5	1.0	**12.45**
821530	**821545**	240	15	3.0	**12.45**
821531	**821546**	240	50	10.0	**18.30**
3-Wire—Self-Contained					
821532	**821547**	120–240	5	1.0	**12.45**
821533	**821548**	120–240	15	3.0	**12.45**
821534	**821549**	120–140	50	10.0	**18.30**
2-Wire—For Use with Transformers					
821535	**821550**	120	5	*	**12.75**
821536	**821551**	240	5	*	**13.70**
821537	**821552**	120	5	0.5†	**12.75**
821538	**821553**	240	5	1.0†	**13.70**
3-Wire—For Use with 3-Wire Current Transformers					
821539	**821544**	120–240	5	*	**13.70**
821540	**821555**	120–240	5	1.0†	**13.70**
3-Wire—For Use with Two 2-Wire, 5 Ampere Secondary, Current Transformers Connected in Parallel Phase					
938918	**938920**	120–240	¶5	*	**14.25**
938919	**938921**	120–240	¶5	1.0†	**14.25**

Available with cyclometer dials.

*These meters are equipped with registers of kw. capacity corresponding to transformer ratios which should be given when ordering.

†These meters are equipped with registers of kw. capacity corresponding to meter rating, without regard to the instrument transformers used.

‡For Type CS Watthour Meters complete with Type RW or RL Demand Register add **$20.80** to price, and for meters with Type RW-2 or RL-2 Demand Register, add **$29.30.**

¶These meters have 10-ampere, 2-wire current coils.

TYPE S SOCKETS

Complete with Terminal Block and Sealing Ring
Sockets with Two Threaded Outlets

For Self-Contained Meters■

Vertical			Horizontal		
Cat. No.	Size of Pipe Inches	Price Each	Cat. No.	Size of Pipe Inches	Price Each
Without Circuit Closing Device					
821559	¾	**$3.10**	**838839**	¾	**$3.30**
821560	1	**3.00**	**838840**	1	**3.20**
821561	1¼	**3.10**	**838841**	1¼	**3.30**
With Circuit Closing Device					
837685	¾	**3.75**	**839163**	¾	**4.10**
837686	1	**3.65**	**839164**	1	**4.00**
837687	1¼	**3.75**	**839165**	1¼	**4.10**
For Transformer Type Meters — With Circuit Closing Device					
837679	¾	**4.10**	**936837**	¾	**4.10**
837680	1	**4.00**	**936838**	1	**4.00**
837681	1¼	**4.10**	**936839**	1¼	**4.10**

■The horizontal sockets can be used with transformer type meters by removing the jumper of one circuit-closing element.

Bus line terminals (factory shipment only) **$0.10** net extra per socket.

WESTINGHOUSE WATTHOUR METERS

TYPE CS UNIVERSAL DETACHABLE WATTHOUR METERS

Type S Sockets with Two Threaded Outlets and Breakout in Back — Shallow Socket

For Self-Contained Meters*

Vertical			Horizontal		
Cat. No.	Size of Pipe Inches	Price Each	Cat. No.	Size of Pipe Inches	Price Each
Without Circuit Closing Device					
930577	¾	$3.10	930580	¾	$3.30
930578	1	3.00	930581	1	3.20
With Circuit Closing Device					
930583	¾	3.75	930586	¾	4.10
930584	1	3.65	930587	1	4.00
For Transformer Type Meters — With Circuit Closing Device					
936840	¾	3.75	936842	¾	4.10
936841	1	3.65	936843	1	4.00

Deep Socket

For Self-Contained Meters*
Without Circuit Closing Device

839461	1¼	3.60	839470	1¼	3.80
With Circuit Closing Device					
839479	1¼	4.25	839488	1¼	4.60
For Transformer Type Meters — With Circuit Closing Device					
939497	1¼	4.25	839506	1¼	4.60

Bus line terminals (factory shipment only) $0.10 net extra per socket.

Sockets with Three Threaded Outlets and Breakout in Back

For Self-Contained Meters
Without Circuit Closing Device

839453	¾	$3.95	839462	¾	$4.15
839454	1	3.85	839463	1	4.05
839455	1¼ & 1	3.95	839464	1¼ & 1	4.15
839458	1¼	3.95	839467	1¼	4.15
For Self-Contained Meters* **With Circuit Closing Device**					
839471	¾	4.60	839480	¾	4.95
839472	1	4.50	839481	1	4.85
839473	1¼ & 1	4.60	839482	1¼ & 1	4.95
839476	1¼	4.60	839485	1¼	4.95

Bus line terminals standard.

Ring Sockets for Channel Plates or Troughs

For Self-Contained Meters
Without Circuit Closing Device

1101578	....	$2.75	1101579	....	$2.95
For Self-Contained Meters* **With Circuit Closing Device**					
1101580	....	3.40	1101581	....	3.75

*The horizontal sockets can be used with transformer type meters by removing the jumper of one circuit-closing element.

Bus line terminals standard.

Two-outlet shallow sockets have a ¾-inch and a 1-inch breakout in back. Two-outlet deep sockets and all three outlet sockets have a 1-inch and a 1¼-inch breakout.

Complete Set of Parts to Equip Any Type S Socket with Circuit Closing Device

Cat. No.	Vertical	Price Each
877651	Self-Contained	$1.00
877649	Transformer Type	.50

Cat. No.	Horizontal	Price Each
877650	Self-Contained	$1.50
877648	Transformer Type	.75

WESTINGHOUSE WATTHOUR METERS

TYPE CS UNIVERSAL DETACHABLE WATTHOUR METERS

Single-Phase—Alternating Current

For Outdoor or Indoor Use

ACCESSORIES FOR CS METER SOCKETS

Cat. No.	Description	Price Each
839038	Ground Terminal Complete with Set Screw and Mounting Screw	$0.25
930620	New Bus Line Terminal Complete (2 required per meter)	.25
934078	New Bus Line Terminal Complete Right Hand	.25
	Brass Plug	
	Complete with Sealing Screw for Closing Pipe Outlet in Socket	
838314	1¼-Inch	.35
838315	1 -inch	.25
838316	¾-Inch	.20
	Glass Cover Plate	
878373	For All Above Listed Type S Sockets	.25
	Test Jack*	
838800	For Testing 2- and 3-Wire CS Detachable Self-Contained Meters with or without Circuit Closing Device	20.00
838801	For Testing CS Detachable Transformer Type Meters	20.00

*Not suitable for testing the transformer-type meters.

TYPE S ARMOR MOUNTING PARTS

For Converting Watthour Meters to Detachable Form

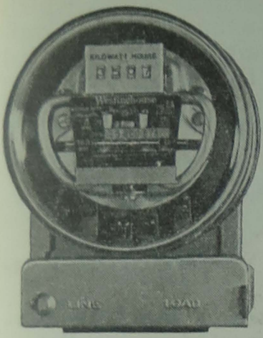
A set of Type S Armor Mounting Parts consists of all parts necessary to convert single-phase house service meters into detachable form, giving them the features of the CS detachable meter.

The catalog number and price include the glass cover, base plate with hanger lug, complete with supports and terminals, but does not include socket. Sockets should be ordered as separate items.

Two-Wire Cat. No.	Price Each	Three-Wire Cat. No.	Price Each
Westinghouse Watthour Meters			
Indoor Types OC and CA — 5 and 15 Amperes			
837487	$1.90	837488	$2.25
Type OB — 5, 10, 15 and 25 Amperes			
837477	1.90	837478	2.25
Type OA (Bottom Connected) 5, 10, 15 and 25 Amperes			
837479	2.25	837480	2.50
Sangamo Watthour Meters			
Types H (Serial Number Above 330,000) H2 nd HC 5, 10, 15 and 25 Amperes			
837471	2.25	837472	2.65
Type H (Below Serial Number 330,000) 5, 10, 15 and 25 Amperes			
839155	2.65	839156	3.00
Type HFA—5, 10, 15 and 25 Amperes			
939202	2.25	939203	3.00
General Electric Watthour Meters			
Types I-14 and I-15 — 5, 10, 15 and 25 Amperes			
837469	2.25	837470	3.00
Types I-16 and I-120-A — 5, 10, 15 and 25 Amperes			
837481	2.25	837482	2.65
Duncan Watthour Meters			
Type MD — 5, 10, 15 and 25 Amperes			
837473	2.25	837474	2.65
Type M2 —5, 10, 15 and 25 Amperes			
837475	2.65	837476	3.00
Type MFA — 5, 10, 15 and 25 Amperes			
939204	2.65	939205	3.00

WESTINGHOUSE WATTHOUR METERS

TYPE CA SINGLE-PHASE WATTHOUR METERS



Type CA Single-Phase Watthour Meter is identical with the Types OC and CS meters except for the glass cover, base and terminal structure. All three meters have the same internal mechanism and performance characteristics. The CA meter has a deeper glass cover, a shallow die-cast aluminum base and a terminal structure corresponding to the A meters furnished by other American meter manufacturers. It is interchangeable with the Type OC and all other meters having standardized terminal chamber trim dimensions.

There are no adjustments in the CA meter except for calibration. All parts are made with precision, have a definite location and no adjustments are required to make them fit.

The calibration adjustments are integral parts of the magnet assemblies assuring maximum stability. The permanent magnet may be removed and replaced without disturbing the full load adjustment and the same is true of the electromagnet which carries the light load adjustment.

Distinctive Characteristics: Having the same operating mechanism as the OC and CS meters, the CA embodies all of the remarkable characteristics of these designs. Some of these outstanding features are:

Outstanding performance — Meter is practically 100 per cent accurate from very light load to 400 per cent overload. Accuracy of registration is little affected by variations in voltage, temperature, frequency or power factor. Register starts on very light loads.

Greater thermal capacity — Larger conductors are placed on current coils. Ample capacity is provided for all operating requirements.

Only three current ratings (5, 15 and 50 amperes) required for self-contained loads — Central stations can carry fewer meters in stock. Storage space may be cut in proportion. Changing of meters for increased loads may be reduced. Fewer repair parts may be carried in stock.

One base size and terminals — All AC single-phase meters use only one-size base and terminals. All parts, except the electro-magnet, register and name plate, are identical and interchangeable in all ratings. Terminal chamber is arranged to fit meter trims of both 30- and 60-ampere switch boxes. Cover design minimizes the possibility of tampering.

Bearings — Lower bearing consists of a highly polished and hardened steel ball revolving between 2 cup-shaped sapphire jewels. The rolling action of the ball between the 2 jewels results in a practically frictionless bearing. No lubrication whatsoever is need in this bearing either for protection of parts or for reduction of friction.

Detailed information as to construction of type CA watthour meters furnished on request.

WESTINGHOUSE WATTHOUR METERS

TYPE CA SINGLE-PHASE WATTHOUR METERS, SELF-CONTAINED

Left-Hand Feed

Catalog number and list price includes meter complete with glass cover as listed, ready for installation.

2-Wire

Cat. No.					
50 Cycles Glass Cover	60 Cycles Glass Cover	Volts	Amps.	Nominal K.W.	Price Each
876639	**876648**	120	5	0.5	**$11.55**
876640	**876649**	120	15	1.5	**11.55**
876641	**876650**	120	50	5.0	**16.40**
876642	**876651**	240	5	1	**12.45**
876643	**876652**	240	15	3	**12.45**
876644	**876653**	240	50	10	**18.30**
3-Wire with Four Terminals					
876666	**876660**	120–240	5	1	**12.45**
876667	**876661**	120–240	15	3	**12.45**
876668	**876662**	120–240	50	10	**18.30**
3-Wire with Six Terminals‡					
876669	**876663**	120–240	5	1	**12.45**
876670	**876664**	120–240	15	3	**12.45**
876671	**876665**	120–240	50	10	**18.30**

SINGLE-PHASE METERS FOR USE WITH TRANSFORMERS

Left-Hand Feed

These meters are arranged for use with current transformers with 5-ampere secondaries, for current capacities higher than those listed in the preceding table. The 120-volt meters, listed below, can be used with voltage transformers with 120-volt secondaries for voltages higher than those listed.

Catalog number and list price include 5-ampere meter of the voltage listed, for use with transformers, but do not include transformers. Price for the meter with register as ordered will be the same as for meter listed. Transformers should be added at regular prices.

2-Wire

Cat. No.					
50 Cycles Glass Cover	60 Cycles Glass Cover	Volts	Amps.	Nominal K.W.	Price Each
876672	**876683**	120	5	†	**$12.75**
876673	**876684**	240	5	†	**13.70**
876675	**876687**	120	5	0.5*	**12.75**
876676	**876688**	240	5	1*	**13.70**
3-Wire with Four Terminals for Use with 3-Wire Current Transformers					
876679	**876635**	120–240	5	†	**13.70**
876680	**876636**	120–240	5	1*	**13.70**
3-Wire with Six Terminals for Use with Two 2-Wire Current Transformers‡					
876681	**876637**	120–240	5	†	**13.70**
876682	**876638**	120–240	5	1*	**13.70**

Available with cyclometer dials.

*These meters are supplied with a register of kw. capacity corresponding to meter rating, without regard to the instrument transformers used. The multiplier will be equivalent to the transformer ratio.

†These meters are supplied with a register of kw. capacity corresponding to instrument transformer ratios, which should be given when ordering. The multiplier will be 10 or a multiple of 10.

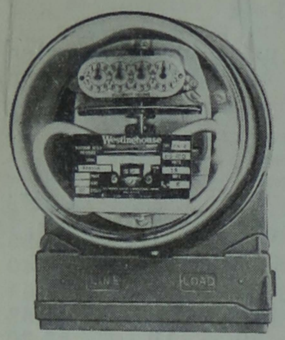
‡These meters have two extra terminals so that independent voltage connections may be made if desired.

Standard ratchet attachments can be supplied with complete meters or registers only at a net extra charge of **$1.00** each. They cannot be supplied separately.

CA Watthour Demand Meters can be supplied with RW or RL Demand Registers at an extra list price of $20.80 per meter, and for meters with Type RW-2 or RL-2 Demand Register, add $29.30 list.

WESTINGHOUSE WATTHOUR METERS

TYPE CA-2 — POLYPHASE HOUSE SERVICE



Type CA-2
Two-Element Meter

Type CA polyphase two-element meters have the same internal mechanism and performance characteristics as type CS polyphase two-element detachable meters, but are mounted in an "A" type instead of "S" type case. They are complete two-element meters with two independent electro-magnets and a two-disc moving element mounted on a one-piece frame.

Type CA-2 self-contained meters for which catalog numbers are listed have six current terminals with all potential connections inside the meter and potential disconnect links provided on the line side for testing. They are intended for single phase three-wire, two or three phase three-wire service, or two phase three-wire network service.

When self-contained meters with eight current terminals are required for two phase four-wire service, they should be ordered "similar to" the numbers listed for type CA-2 meters "except for two phase four-wire service."

The transformer type CA-2 meters for which catalog numbers are listed have four current terminals and four potential terminals, and are intended for single phase three-wire, two or three phase three-wire or two phase three-wire network; or two phase four-wire services where either current or potential transformers or both are used.

They are also suitable for the following applications:

1—Three phase, four-wire "Y" service with instrument transformers.

2—Two phase, five-wire service in which the current transformers are connected in parallel.

3—Three phase, four-wire Delta service using one three-wire and one two-wire current transformer of equal ratio. In this application, the single phase service will be metered under the same conditions as when a single phase two-wire meter is used with a three-wire current transformer. The three phase, three-wire service will be metered accurately under all conditions.

Many other combinations for specific uses are available.

Type CA-2 Two-Element Watthour-Meters for Single Phase, Two Phase or Three Phase, Three-Wire Service

The catalog number and list price include meter complete with potential indicating lamps and glass cover as listed. There will be no reduction in price should the meters be required without potential indicating lamps.

Volts	Amps.	Kw.	Catalog Number 50 Cycles	Catalog Number 60 Cycles	Price Each	Volts	Amps.	Kw.	Catalog Number 50 Cycles	Catalog Number 60 Cycles	Price Each
Self-Contained Meters‡											
120	5	1.0	929483	929503	$26.75	480	5	4.0	929493	929513	$35.70
120	15	3.0	929505	929505	26.75	480	15	12.0	929495	929515	35.70
120	50	10.0	929507	929507	38.65	480	50	40.0	929497	929517	47.80
240	5	2.0	929488	929508	29.65	600	5	5.0	929498	929518	35.70
240	15	6.0	929490	929510	29.65	600	15	15.0	929500	929520	35.70
240	50	20.0	929492	929512	41.60	600	50	50.0	929502	929522	47.80
Meters for Use with Transformers											
120	2.5	.5†	929523	929539	28.10	480	2.5	2.0†	929531	929547	37.00
120	2.5	*	929524	929540	28.10	480	2.5	*	929532	929548	37.00
120	5	1.0†	929525	929541	28.10	480	5	4.0†	929533	929549	37.00
120	5	*	929526	929542	28.10	480	5	*	929534	929550	37.00
240	2.5	1.0†	929527	929543	31.10	600	2.5	2.5†	929535	929551	37.00
240	2.5	*	929528	929544	31.10	600	2.5	*	929536	929552	37.00
240	5	2.0†	929529	929545	31.10	600	5	5.0†	929537	929553	37.00
240	5	*	929530	929546	31.10	600	5	*	929538	929554	37.00

‡These self-contained meters have six current terminals only and are not suitable for two phase, four-wire service. When meters with eight current terminals for two phase, four-wire are desired, specify "similar to these catalog numbers except for two phase, four-wire service." The prices will be the same as those listed above.

†These meters are supplied with registers corresponding to their kw. capacities without transformers. When used with transformers, the reading must be multiplied by the ratio of the transformers.

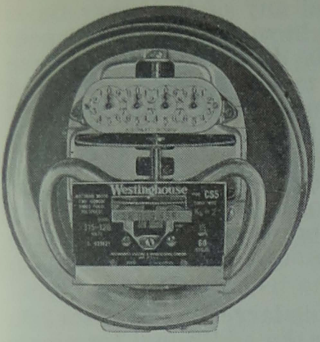
*These meters are supplied with registers of the kw. capacity corresponding to the instrument transformer ratios specified on the order.

Standard ratchet attachments can be supplied with complete meters or registers at a net additional charge of **$1.00** each. They cannot be supplied separately.

The watthour meters listed above can be supplied with RW demand registers at an extra list price of **$20.80** per meter, or with RW-2 demand registers at an extra list price of **$29.30** per meter.

WESTINGHOUSE WATTHOUR METERS

TYPES CS-2 AND CS-5 POLYPHASE DETACHABLE METERS


Type CS-5 Meter

These two-element meters have two independent electromagnets and a two-disc moving element mounted on a one-piece frame. The compact yet simple construction of the electromagnets and the moving element, and the use of only one permanent magnet for damping, makes it possible to mount these meters on a base plate the same size as the base plate of the single phase type CS meter. The blade terminals are distributed over the large area of the base plate, providing more clearance between terminals than in bottom-connected meters with consequently greater protection against flashover failures.

They are suitable for any a.c. applications where a two or three-element watthour meter is required.

Type CS-2 self-contained meters, for which catalog numbers are listed, have eight terminals and are intended for two phase four-wire service. They are also suitable for one, two or three phase three-wire or three-wire network, but generally the CS-5 meters are preferable for these applications because of the lower cost of both the meter and socket.

Type CS-2 transformer meters, for which catalog numbers are listed, have eight terminals and are intended for one, two or three phase three-wire, three-wire network, or two phase four-wire services. They are also suitable for the same applications as listed under the CA-2 meters.

Type CS-5 self-contained two-element network meters, for which catalog numbers are listed, have six terminals, two of which are connected in common, and are suitable for self-contained single phase three-wire, two or three phase three-wire services; or two phase three-wire network services supplied from a three phase four-wire Y-connected system. Both potential elements are connected in common on the load side; however, a potential disconnect link is provided on the line side of one element for testing.

The type S-5 sockets, for which styles are listed, either with or without circuit-closing device, are suitable for use with these meters. Only one of the two common terminals of the meter engages with the fifth terminal of the socket depending upon whether the socket is installed for vertical or horizontal mounting.

PRICES OF CS-2 AND CS-5 WATTHOUR METERS

The catalog number and list price include meter complete with potential indicating lamps and glass cover as listed, but do not include socket. There is no reduction in price if meters are ordered without potential indicating lamps.

Type CS-2 Two-Element Watthour Meters for Two Phase, Four-Wire Service
Self-Contained Meters

			Catalog Number		Price				Catalog Number		Price
Volts	Amps.	Kw.	50 Cycles	60 Cycles	Each	Volts	Amps.	Kw.	50 Cycles	60 Cycles	Each
120	5	1.0	1009871	1009891	$26.75	480	5	4.0	1009881	1009901	$35.70
120	15	3.0	1009873	1009893	26.75	480	15	12.0	1009883	1009903	35.70
120	50	10.0	1009875	1009895	38.65	480	50	40.0	1009885	1009905	47.80
240	5	2.0	1009876	1009896	29.65	600	5	5.0	1009886	1009906	35.70
240	15	6.0	1009878	1009898	29.65	600	15	15.0	1009888	1009908	35.70
240	50	20.0	1009880	1009900	41.60	600	50	50.0	1009890	1009910	47.80

Type CS-2 Two-Element Watthour Meters for Two Phase, Three or Four-Wire; Three Phase, Three-Wire or Three-Wire Network Service
Meters for Use with Transformers

120	2.5	.5†	1004040	1004052	28.10	480	2.5	2.0†	1004048	1004059	37.00
120	2.5	*	1004041	1004053	28.10	480	2.5	*	1004049	1004060	37.00
120	5	1.0†	1004042	1000000	28.10	480	5	4.0†	1004050	1004061	37.00
120	5	*	1004043	1004054	28.10	480	5	*	1004051	1004062	37.00
240	2.5	1.0†	1004044	1004055	31.10	600	2.5	2.5	937651	937655	37.00
240	2.5	*	1004045	1004056	31.10	600	2.5	*	937652	937656	37.00
240	5	2.0†	1004046	1004057	31.10	600	5	5	937653	937657	37.00
240	5	*	1004047	1004058	31.10	600	5	*	937654	937658	37.00

Type CS-5 Two-Element Watthour Meters for Three-Wire, Two or Three Phase or Network Service
Self-Contained Meters

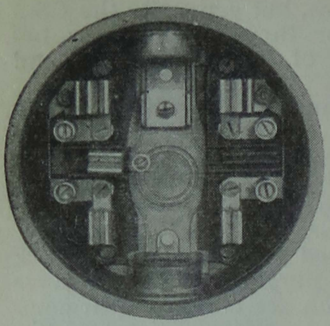
120	5	1	931409	931419	$25.40	480	5	4	1004000	1004005	$34.35
120	15	3	931411	931421	25.40	480	15	12	1004002	1004007	34.35
120	50	10	931413	931423	37.35	480	50	40	1004004	1004009	46.35
240	5	2	931414	931424	28.25	600	5	5	937641	937646	34.35
240	15	6	931416	931426	28.25	600	15	15	937643	937648	34.35
240	50	20	931418	931428	40.20	600	50	50	937645	937650	46.35

*These meters are supplied with registers of kw. capacity corresponding to the instrument transformer ratios specified on the order.

†These meters are supplied with registers corresponding to their kw. capacity without transformers. When used with transformers, the reading must be multiplied by the ratio of the transformers.

WESTINGHOUSE WATTHOUR METERS

SOCKETS FOR CS-2 AND CS-5 POLYPHASE DETACHABLE METERS



Type S-5 Double Pipe Socket with Circuit Closing Device—Vertical Mounting

CS-2 meters require type S-2 sockets and CS-5 meters require S-5 sockets. In general, these polyphase type S sockets consist of a weatherproof housing into which is assembled a suitable arrangement of switch-jaw terminals to accommodate the blade terminals of detachable type S meters. All types are suitable for either indoor or outdoor mounting and are available with outlet facilities for multiple or gang installations, vertical or horizontal, using either conduit or cable. The round opening in the front, which accommodates the base plate of the meter and provides means of sealing the meter to the socket, is the same size for all types. This results in high interchangeability of detachable meter mountings and permits the use of the glass cover plate for completely sealing any type S socket when for any reason the service is to be left connected without the meter being installed. With new sequence wiring, this is an important advantage.

To facilitate continuity of service, any of these sockets can be supplied with a circuit-closing device which automatically closes the circuit through the socket when the meter is temporarily withdrawn for test or other purposes.

All type S-5 sockets and any of the other types listed with sub-terminals have facilities for opening the circuit when it is desired to discontinue service and still leave the meter in place. Type S-5 sockets are round, one-piece aluminum-alloy die castings into which is fastened the switch-jaw terminal block assemblies. They are listed for either vertical or horizontal feed but they can be readily converted from one form to another by simply rearranging the positions of the switch-jaw terminals and connectors.

Type S-2 sockets are made larger than S-5 sockets to provide more space for the additional terminals and wiring required for the meters with which they are used. They are rectangular in shape with a threaded pipe connection in the top and knockouts in the bottom and both sides. They are made of heavy sheet aluminum alloy with an aluminum-alloy die-cast ring permanently fastened into the cover plate to provide a rigid mounting for the terminal blocks and the meter. They are furnished with a porcelain terminal block into which are assembled the switch-jaw terminals and connectors. The terminal block will accommodate as many as eight switch-jaw current terminals.

Disconnecting switch — in type S-5, a simple arrangement of the connectors between the four main switch-jaw terminals and line terminals provides a disconnecting switch for opening the circuit when it is desired to leave the meter installed. Type S-2 sockets listed with sub-terminal assemblies have disconnecting facilities.

Type S-2 Sockets—For Type CS-2 Self-Contained and Transformer Type Meters For Vertical Mounting Outdoors or Indoors

	WITHOUT SUB-TERMINAL ASSEMBLY Each socket has one threaded outlet in top and knockouts in bottom.				WITH SUB-TERMINAL ASSEMBLY Each socket has one threaded outlet in top and knockouts in sides and bottom.			
	Without Circuit Closing Device		With Circuit Closing Device		Without Circuit Closing Device		With Circuit Closing Device	
Pipe Size Inches	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.
1¼	1096768	$14.25	1096770	$15.00	1096772	$18.80	1096774	$19.55
2	1096769	15.10	1096771	15.85	1096773	19.65	1096775	20.40

Type S-5 Sockets—For Type CS-5 Meters for Mounting Outdoors or Indoors

	Without Circuit-Closing Device				With Circuit-Closing Device			
	Vertical		Horizontal		Vertical		Horizontal	
Pipe Size Inches	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.
	Sockets with Two Threaded Outlets							
¾	934309	$3.50	934312	$3.70	934315	$4.15	934318	$4.50
1	934310	3.40	934313	3.60	934316	4.05	934319	4.40
1¼	934311	3.50	934314	3.70	934317	4.15	934320	4.50

Bus line terminals (factory shipment only) **$0.10** net extra per socket.

Sockets with Two Threaded Outlets and Breakout* in Back—Shallow Socket

Pipe Size Inches	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.
¾	934321	3.50	934324	3.70	934327	4.15	934330	4.50
1	934322	3.40	934325	3.60	934328	4.05	934331	4.40
	Deep Socket							
1¼	934323	4.00	934326	4.20	934329	4.65	934332	5.00

Bus line terminals (factory shipment only) **$0.10** net extra per socket.

Sockets with Three Threaded Outlets and Breakout* in Back

Pipe Size Inches	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.
¾	934333	4.35	934337	4.55	934341	5.00	934345	5.35
1	934334	4.25	934338	4.45	934342	4.90	934346	5.25
1¼ and 1	934335	4.35	934339	4.55	934343	5.00	934347	5.35
1¼	934336	4.35	934340	4.55	934344	5.00	934348	5.35

Bus line terminals standard.

*All shallow sockets have one ¾-inch and one 1-inch breakout in back. All deep sockets and all three outlet sockets have one 1-inch and one 1¼-inch breakout in back.

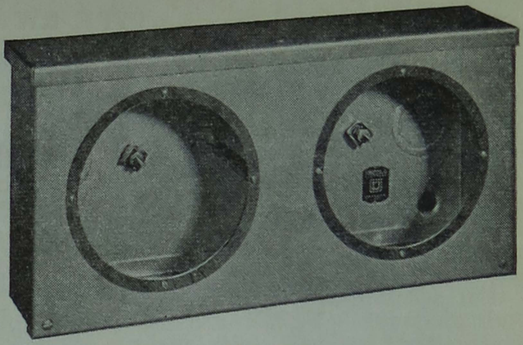
Ring Sockets for Switchboard or Trough Mounting

Pipe Size Inches	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.	Cat. No.	Price Ea.
......	934349	3.15	934350	3.35	934351	3.80	934352	4.15

Bus line terminals standard.

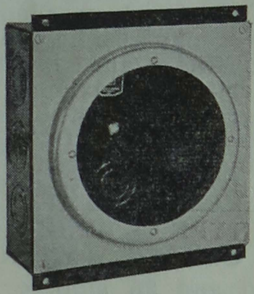
SQUARE D METER SOCKET TROUGH

By means of the Square D ganging connector base, the main service may be brought in and permanently connected to the base before the meter sockets are installed, and additional ganging is simplified. Connection from the main service to the sockets is made by flexible jumpers supplied with each base. To discontinue the service it is not necessary to remove the meter. Merely disconnect the flexible jumpers and replace the meter. The indoor type may be used for either vertical or horizontal mounting by merely turning the sockets to the desired position. The indoor type can be banked to accommodate additional meters by removing the end wall and adding extension strap catalong number 29001. The solderless lugs used on these devices will take from No. 14 to No. 1 wire. Larger sizes furnished on request.


No. 743

INDOOR TYPE (Black Enamel Finish)

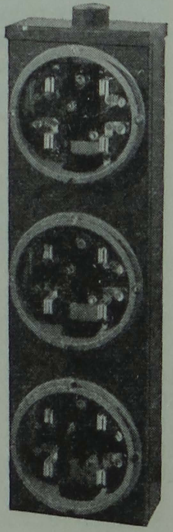
No. of Meters	Horizontal Mounting Cat. No.	Horizontal Mounting List Price	Vertical Mounting Cat. No.	Vertical Mounting List Price
TROUGH ONLY with Endwalls and Cover				
1	29102	$3.00	29102	$3.00
2	29202	5.40	29202	5.40
3	29302	7.70	29302	7.70
4	29402	10.00	29402	10.00
TROUGH ONLY with Ganging Connector Base Assembly and Two Jumpers				
1	29122	4.60	29122	4.60
2	29222	8.70	29222	8.70
3	29322	12.50	29322	12.50
4	29422	16.30	29422	16.30
***TROUGH COMPLETE with Ganging Base and Meter Sockets**				
1	29142	7.00	29142	7.00
2	29242	13.40	29262	13.40
3	29342	19.70	29362	19.70
4	29442	26.00	29462	26.00
***TROUGH COMPLETE with Ganging Base and Meter Sockets having Circuit-Closing Device**				
1	29152	7.80	29152	7.80
2	29252	15.00	29272	15.00
3	29352	22.10	29372	22.10
4	29452	29.20	29472	29.20


No. 707

†OUTDOOR TYPE (Galvanite Baked Aluminum Finish)

No. of Meters	Surface Horizontal Mounting Cat. No.	Surface Vertical Mounting Cat. No.	Flush Horizontal or Vertical Mounting Cat. No.	Flush Horizontal or Vertical Mounting List Price
1	742	742	707	$3.00
2	743	784	708	5.40
3	749	748	746	7.70
4	760	750	785	10.00
†TROUGH ONLY with Ganging Connector Base Assembly and Two Jumpers				
1	29131	--------	29131	5.00
2	29221	--------	29231	9.30
3	29321	--------	29331	14.30
4	29421	--------	29431	18.50
***TROUGH COMPLETE with Ganging Base and Meter Sockets**				
1	29161	--------	29161	7.70
2	29241	--------	29261	14.70
3	29341	--------	29361	22.50
4	29441	--------	29461	29.30
***†TROUGH COMPLETE with Ganging Base and Meter Sockets having Circuit-Closing Device**				
1	29171	--------	29171	8.50
2	29251	--------	29271	16.30
3	29351	--------	29371	24.90
4	29451	--------	29471	32.50

*Does not include Meter Sealing Ring; if Sealing Ring is desired, add "A" to catalog number and add **$0.60** list per meter position.


No. 29361

HUBS

†Outdoor types can be furnished with conduit hub in top or top and bottom. Designate hub desired by letter, following catalog number, from table below:

Size	One in Top Suffix	One in Top List Price	Two in Top Suffix	Two in Top List Price	One in Top, One in Bottom Suffix	One in Top, One in Bottom List Price
¾	C	$0.85	P	$1.70	J	$1.70
1	D	.85	Q	1.70	K	1.70
1¼	E	1.15	T	2.30	L	2.30
1½	G	1.60	V	3.20	M	3.20
2	H	1.90	Z	3.80	N	3.80

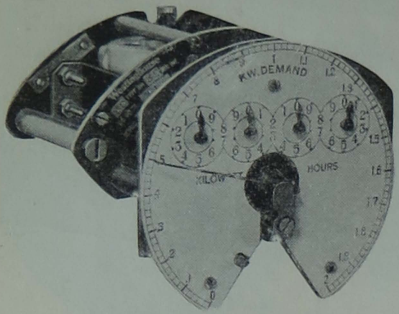
ACCESSORIES

Cat. No.	Description	List Price
29001	Trough extension strap	$0.30
29009	Blank cover for meter socket	.50
29008	Meter Sealing Ring	.60

Ganging Connector Base

WESTINGHOUSE WATTHOUR METERS

TYPE RW INDICATING DEMAND REGISTERS



Type RW Demand Register
Sweep-Hand Demand Dial

Westinghouse type RW watthour demand registers combine the regular watthour meter register with the scale and pointers of an indicating block interval demand meter. By replacing the register and cover of standard OB, OC, CA or CS single phase and corresponding polyphase meters with this new register and a special cover, the standard watthour meter is converted into an indicating block interval demand meter. By means of an adapter bracket, the type OA meters may also be converted to the demand type. After this change has been made, the meter will indicate the maximum kilowatt demand and the integrated kilowatt-hours.

These demand registers may be used wherever the indicating type of demand meter is satisfactory. Smaller power installations, where investment does not permit the use of more expensive recording demand meters, offer the most frequent applications.

Universal Demand Attachments with Lower Prices

It is recommended that watthour meters be ordered complete with UNIVERSAL .5 or 1.0 KW demand attachment, for which deduct 60 cents from the list prices for meters with type RW demand attachments. It is also recommended that separate UNIVERSAL .5 or 1.0 KW demand attachments be ordered, for which deduct 70 cents from the list prices for RW demand attachments.

This reduction in list price is made possible by economies in manufacturing and stocking these universal capacities as compared with individual capacities that must be made to order.

Important economies other than lower price result from the use of these universal demand attachments, some of which are increased application, minimum stock and simplified maintenance. If a 1.0 KW demand attachment is applied, the dial multiplier will be the nominal KW rating of the meter, and if a .5 KW demand attachment is applied the multiplier will be double the nominal KW rating, so for any meter rating the multiplier will be a whole number.

TYPE CS SINGLE PHASE, DETACHABLE METERS COMPLETE WITH TYPE RW DEMAND REGISTER

10 and 25 ampere self-contained meters complete with Type RW Demand Register will be supplied if specified on order. List price for 10 ampere, and for 25 ampere same as for 50 ampere listed below.

TYPE RW DEMAND REGISTERS ONLY FOR TYPE CS SINGLE PHASE, DETACHABLE METERS

Complete with Glass Cover

§Volts	Amps.	Nom. Kw.	Catalog Number				Price Each	Catalog Number				Price Each
			50 Cycles		60 Cycles			50 Cycles		60 Cycles		
			15 Min.	30 Min.	15 Min.	30 Min.		15 Min.	30 Min.	15 Min.	30 Min.	
Self-Contained Meters												
Two-Wire												
120	5	0.5	932000	932010	932020	932030	$32.35	932816	932837	928592	928616	$22.50
120	10	1.0	....	....	....	....	....	932817	932838	928593	928617	22.50
120	15	1.5	932002	932012	932022	932032	32.35	932818	932839	928594	928618	22.50
120	25	2.5	....	....	....	....	....	932819	932840	928595	928619	22.50
120	50	5.0	932004	932014	932024	932034	37.20	932820	932841	928596	928620	22.50
240	5	1.0	932005	932015	932025	932035	33.25	932821	932842	928598	928622	22.50
240	10	2.0	....	....	....	....	....	932822	932843	928599	928623	22.50
240	15	3.0	932007	932017	932027	932037	33.25	932823	932844	928600	928624	22.50
240	25	5.0	....	....	....	....	....	932824	932845	928601	928625	22.50
240	50	10.0	932009	932019	932029	932039	39.10	932825	932846	928602	928626	22.50
Three-Wire												
120/240	5	1.0	932040	932045	932050	932055	33.25	932826	932847	928604	928628	22.50
120/240	10	2.0	....	....	....	....	....	932827	932848	928605	928629	22.50
120/240	15	3.0	932042	932047	932052	932057	33.25	932828	932849	928606	928630	22.50
120/240	25	5.0	....	....	....	....	....	932829	932850	928607	928631	22.50
120/240	50	10.0	932044	932049	932054	932059	39.10	932830	932851	928608	928632	22.50
Meters for Use with Transformers												
Two-Wire												
120	5	*	932060	932068	932076	932084	33.55	932831	932852	928613	928637	22.50
120	5	.5†	932061	932069	932077	932085	33.55	932832	932853	928612	928636	22.50
240	5	*	932064	932072	932080	932088	34.50	932833	932854	928615	928639	22.50
240	5	1.0†	932065	932073	932081	932089	34.50	932834	932855	928614	928638	22.50
Three-Wire for Use with 3-Wire Current Transformers												
120/240	5	*	932092	932096	932100	932104	34.50	932835	932856	928611	928635	22.50
120/240	5	1.0†	932093	932097	932101	932105	34.50	932836	932857	928610	928634	22.50

* These meters are supplied with registers of kw. capacity corresponding to the instrument transformer rations specified on the order.

† These meters are supplied with registers corresponding to their kw. capacity without transformers. When used with transformers, the readings must be multiplied by the ratio of the transformers.

§ These meters and registers may be used on circuits, the voltage of which may be 10% above or below the rated voltage of the meter. When ordering meters or registers for voltages outside of these limits, the normal operating voltage should be specified.

WESTINGHOUSE WATTHOUR METERS

TYPE RW INDICATING DEMAND REGISTERS

Distinctive Features

1—Demand scale 300 degrees providing accuracy in reading and liberal overload registration.

2—Timing motor is not used as a source of power to store energy for resetting—it functions only as a timing device.

3—The energy required for resetting is so small that compensation for it is made in the meter calibration.

4—Motor rotor bearing and gearing down to 1 rpm. shaft is enclosed in a die-cast gear case containing a liberal supply of oil—all reduction gearing and bearings constantly in bath of oil.

5—The motor field is completely shielded and does not interfere with meter accuracy.

6—Time interval gearing may be removed from the motor assembly as a unit.

7—The time interval gearing indicates the unexpired portion of the time interval.

8—The slow speed reliable synchronous timing motor which operates on the remanence or hysteresis principle.

9—Simplified manual reset device.

General

RW indicating demand recorders are available for many types of meters not listed. Detailed information and prices will be furnished on request.

RW-2 indicating demand registers, which are not listed, are also available for a wide variety of applications on many types of meters. An RW-2 cumulative demand register consists of a type RW register modified so as to provide a cumulated value of previous maximum demands. The advantage of such a demand register is that the indication of the maximum demand is preserved in the cumulated record on the dials during the entire reading period, making it practicable to use the RW-2 register on some loads that might ordinarily require a recording demand meter. Complete data and prices on request.

Types RL and RL-2 exponential or logarithmic demand registers are also available. They register not only kilowatt hours but also will indicate or cumulate logarithmic values of demand as obtained by thermal-type maximum demand meters. Complete data and prices on request.

TYPE CA SINGLE PHASE, HOUSE SERVICE METERS COMPLETE WITH TYPE RW DEMAND REGISTER

10 and 25 ampere self-contained meters complete with Type RW Demand Register will be supplied if specified.

TYPE RW DEMAND REGISTERS ONLY FOR TYPE CA SINGLE PHASE, HOUSE SERVICE METERS

Complete with Glass Cover

			Catalog Number					Catalog Number				
		Nom.	50 Cycles		60 Cycles		Price	50 Cycles		60 Cycles		Price
§Volts	Amps.	Kw.	15 Min.	30 Min.	15 Min.	30 Min.	Each	15 Min.	30 Min.	15 Min.	30 Min.	Each
			Self-Contained Meters									
			Two-Wire									
120	5	0.5	**932108**	**932118**	**932128**	**932138**	**$32.35**	**932858**	**932886**	**932914**	**932942**	**$22.50**
120	10	1.0	--------	--------	--------	--------	-------	**932859**	**932887**	**932915**	**932943**	**22.50**
120	15	1.5	**932110**	**932120**	**932130**	**932140**	**32.35**	**932860**	**932888**	**932916**	**932944**	**22.50**
120	25	2.5	--------	--------	--------	--------	-------	**932861**	**932889**	**932917**	**932945**	**22.50**
120	50	5.0	**932112**	**932122**	**932132**	**932142**	**37.20**	**932862**	**932890**	**932918**	**932946**	**22.50**
240	5	1.0	**932113**	**932123**	**932133**	**932143**	**33.25**	**932863**	**932891**	**932919**	**932947**	**22.50**
240	10	2.0	--------	--------	--------	--------	-------	**932864**	**932892**	**932920**	**932948**	**22.50**
240	15	3.0	**932115**	**932125**	**932135**	**932145**	**33.25**	**932865**	**932893**	**932921**	**932949**	**22.50**
240	25	5.0	--------	--------	--------	--------	-------	**932866**	**932894**	**932922**	**932950**	**22.50**
240	50	10.0	**932117**	**932127**	**932137**	**932147**	**39.10**	**932867**	**932895**	**932923**	**932951**	**22.50**
			Three-Wire, Four-Terminal									
120/240	5	1.0	**932148**	**932153**	**932158**	**932163**	**33.25**	**932868**	**932896**	**932924**	**932952**	**22.50**
120/240	10	2.0	--------	--------	--------	--------	-------	**932869**	**932897**	**932925**	**932953**	**22.50**
120/240	15	3.0	**932150**	**932155**	**932160**	**932165**	**33.25**	**932870**	**932898**	**932926**	**932954**	**22.50**
120/240	25	5.0	--------	--------	--------	--------	-------	**932871**	**932899**	**932927**	**932955**	**22.50**
120/240	50	10.0	**932152**	**932157**	**932162**	**932167**	**39.10**	**932872**	**932900**	**932928**	**932956**	**22.50**
			Three-Wire, Six-Terminal									
120/240	5	1.0	**932168**	**932173**	**932178**	**932183**	**33.25**	**932868**	**932896**	**932924**	**932952**	**22.50**
120/240	10	2.0	--------	--------	--------	--------	-------	**932869**	**932897**	**932925**	**932953**	**22.50**
120/240	15	3.0	**932170**	**932175**	**932180**	**932185**	**33.25**	**932870**	**932898**	**932926**	**932954**	**22.50**
120/240	25	5.0	--------	--------	--------	--------	-------	**932871**	**932899**	**932927**	**932955**	**22.50**
120/240	50	10.0	**932172**	**932177**	**932182**	**932187**	**39.10**	**932872**	**932900**	**932928**	**932956**	**22.50**
			Meters for Use with Transformers									
			Two-Wire									
120	5	*	**932188**	**932192**	**932196**	**932200**	**33.55**	**932878**	**932906**	**932934**	**932962**	**22.50**
120	5	.5†	**932189**	**932193**	**932197**	**932201**	**33.55**	**932879**	**932907**	**932935**	**932963**	**22.50**
240	5	*	**932190**	**932194**	**932198**	**932202**	**34.50**	**932882**	**932910**	**932938**	**932966**	**22.50**
240	5	1.0†	**932191**	**932195**	**932199**	**932203**	**34.50**	**932883**	**932911**	**932939**	**932967**	**22.50**
			Three-Wire, Four-Terminal (For Use with 3-Wire Current Transformers)									
120/240	5	*	**932204**	**932206**	**932208**	**932210**	**34.50**	**932970**	**932978**	**932986**	**932994**	**22.50**
120/240	5	1.0†	**932205**	**932207**	**932209**	**932211**	**34.50**	**932971**	**932979**	**932987**	**932995**	**22.50**
			Three-Wire, Six-Terminal (For Use with Two 2-Wire Current Transformers)									
120/240	5	*	**932212**	**932214**	**932216**	**932218**	**34.50**	**932974**	**932982**	**932990**	**932998**	**22.50**
120/240	5	1.0†	**932213**	**932215**	**932217**	**932219**	**34.50**	**932975**	**932983**	**932991**	**932999**	**22.50**

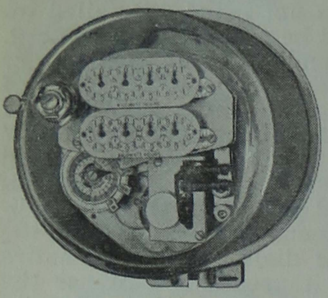
* These meters are supplied with registers of kw. capacity corresponding to the instrument transformer ratios specified on the order.

† These meters are supplied with registers corresponding to their kw. capacity without transformers. When used with transformers, the readings must be multiplied by the ratio of the transformers.

§ These meters and registers may be used on circuits, the voltage of which may be 10% above or below the rated voltage of the meter. When ordering meters or registers for voltages outside of these limits, the normal operating voltage should be specified.

WESTINGHOUSE COMBINATION WATTHOUR METERS

TYPES TCS AND TCA—WITH TIME SWITCH



Type TCS

These meters provide an accurate and economical means for measuring and for controlling either 2-rate or off-peak single phase domestic loads. They are practically 100% accurate from very light loads to heavy overloads. Combined in a single compact unit are the watthour meter, necessary dials, time switch mechanism and contacts. Overall depth of glass cover is only slightly greater than on standard meters.

The slow speed, self-starting synchronous motor operates on the hysteresis principle and runs at 600 rpm. on 60 cycles. One-half dial is shaded to indicate time interval from 6 P.M. to 6 A.M. Cams can be set so that minimum time between operations is approximately 1½ hours, either "on" or "off." Time dial can be reset to correct time of day without removing cover.

Standard heavy duty contacts, thoroughly proved in protective relay service, are used for control of off-peak circuits. Catalog number and list price on type TCS meters include the meter complete with glass cover as listed, but do not include socket. Catalog number and list price on type TCA meters include meter complete with glass cover as listed.

120-240 Volt, 3-Wire (Four Terminal) Self-Contained†

S DETACHABLE TYPES

Off-Peak Meter With Single-Dial Register and Single-Pole, Single-Throw Contacts

Type TCS-111

Amps. Meter	Amps. Contacts*	Catalog Number 50 Cycles	Catalog Number 60 Cycles	Price Each
5	25	929376	929399	$25.35
10	25	929377	929400	25.35
15	25	929378	929401	25.35
25	25	929379	929402	31.20

Off-Peak Meter With Single-Dial Register and Double-Pole, Single-Throw Contacts

Type TCS-121

5	25	929380	929403	26.95
10	25	929381	929404	26.95
15	25	929382	929405	26.95
25	25	929383	929406	32.80

Two-Rate Meter With Double-Dial Register and Single-Pole, Single-Throw Off-Peak Contacts

Type TCS-211

5	25	929384	929407	30.80
10	25	929385	929408	30.80
15	25	929386	929409	30.80
25	25	929387	929410	36.65
50	25	929388	929411	36.65

*Contacts are rated at 25 amperes continuous, but they will satisfactorily open 40 amperes.

†Two-wire combination watthour meter and time switch can be supplied. Prices on request.

WESTINGHOUSE COMBINATION WATTHOUR METERS

TYPES TCS AND TCA—WITH TIME SWITCH

120-240 Volt, 3-Wire (Four Terminal) Self-Contained†

S DETACHABLE TYPES

Two-Rate Meter With Double-Dial Register and Double-Pole, Single-Throw Off-Peak Contacts

Type TCS-221

Amps. Meter	Amps. Contacts*	Catalog Number 50 Cycles	Catalog Number 60 Cycles	Price Each
5	25	929389	929412	$32.40
10	25	929390	929413	32.40
15	25	929391	929414	32.40
25	25	929392	929415	38.25
50	25	929393	929416	38.25

Two-Rate Meter With Double-Dial Register but Without Off-Peak Contacts

Type TCS-2

5	....	929394	929417	29.20
10	....	929395	929418	29.20
15	....	929396	929419	29.20
25	....	929397	929420	35.05
50	....	929398	929421	35.05

A BASE TYPES

Off-Peak Meter With Single-Dial Register and Single-Pole, Single-Throw Contacts

Type TCA-111

5	25	929422	929445	25.35
10	25	929423	929446	25.35
15	25	929424	929447	25.35
25	25	929425	929448	31.20

Off-Peak Meter With Single-Dial Register and Double-Pole, Single-Throw Contacts

Type TCA-121

5	25	929426	929449	26.95
10	25	929427	929450	26.95
15	25	929428	929451	26.95
25	25	929429	929452	32.80

Two-Rate Meter With Double-Dial Register and Single-Pole, Single-Throw Off-Peak Contacts

Type TCA-211

5	25	929430	929453	30.80
10	25	929431	929454	30.80
15	25	929432	929455	30.80
25	25	929433	929456	36.65
50	25	929434	929457	36.65

Two-Rate Meter With Double-Dial Register and Double-Pole, Single-Throw Off-Peak Contacts

Type TCA-221

5	25	929435	929458	32.40
10	25	929436	929459	32.40
15	25	929437	929460	32.40
25	25	929438	929461	38.25
50	25	929439	929462	38.25

Two-Rate Meter With Double-Dial Register but Without Off-Peak Contacts

Type TCA-2

5	....	929440	929463	29.20
10	....	929441	929464	29.20
15	....	929442	929465	29.20
25	....	929443	929466	35.05
50	....	929444	929467	35.05

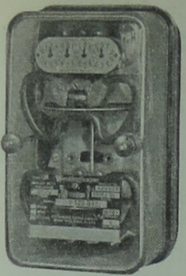
*Contacts are rated at 25 amperes continuous, but they will satisfactorily open 40 amperes.

†Two-wire combination watthour meter and time switch can be supplied. Prices on request.

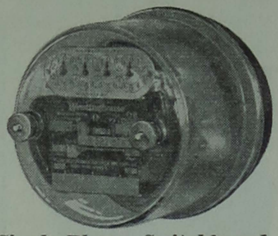
WESTINGHOUSE WATTHOUR METERS

TYPE OB SWITCHBOARD WATTHOUR METERS

Single-Phase and Polyphase



Two-Element Polyphase Switchboard Watthour Meter



Single-Phase Switchboard Watthour Meter

Type OB switchboard meters are built to meet requirements of neat appearance and limited mounting space on slate or composition panels as well as on steel or other thin materials. Designed for single phase and polyphase 2-element service in both the self-contained and transformer types. Three-element meters are available only in transformer types which include 2½, 5 and 10-ampere ratings, making them available also for self-contained service in these ratings. Back-connection terminal studs.

Single phase meters can be used on either 2- or 3-wire services, but it is recommended that the polyphase 2-element meter be used for single phase, 3-wire service unless a 3-wire type of current transformer is used. For this reason, 3-wire single phase meters are not listed.

Polyphase meters—The 2-element meters can be used on 2-phase, 3- or 4-wire; 3-phase, 4-wire; and in special form for 3-phase, 4-wire service. A high degree of accuracy will be obtained even on unbalanced conditions of current and voltage or variations of power factor or wave form when used on 2-phase, 3- or 4-wire or 3-phase, 3-wire. When voltage is badly unbalanced on 3-phase, 4-wire services, greater accuracy may be obtained by the use of the 3-element meter.

Self-Contained Meters

Number and price include meter with glass cover, ready for installation.

Single Phase Meters

Catalog Number					Nom.	Price
25 Cycle	50 Cycle	60 Cycle	Volts	Amps.	Kw.	Each
426486	**625073**	**426507**	120	5	0.5	**$26.85**
426489	**625076**	**426510**	120	10	1.0	**28.75**
426492	**625079**	**426513**	120	15	1.5	**38.35**
426495	**625082**	**426516**	120	25	2.5	**41.25**
426487	**625074**	**426508**	240	5	1.0	**28.25**
426490	**625077**	**426511**	240	10	2.0	**30.30**
426493	**625080**	**426514**	240	15	3.0	**39.00**
426496	**625083**	**426517**	240	25	5.0	**41.80**

Polyphase Meters

718646	**625154**	**426550**	120	5	1.0	**48.25**
718649	**625157**	**426553**	120	10	2.0	**51.15**
718652	**625160**	**426556**	120	15	3.0	**54.00**
....	**625163**	**426559**	120	25	5.0	**59.65**
....	**625166**	**426562**	120	50	10.0	**68.15**
718647	**625155**	**426551**	240	5	2.0	**52.50**
718650	**625158**	**426554**	240	10	4.0	**55.40**
718653	**625161**	**426557**	240	15	6.0	**59.10**
....	**625164**	**426560**	240	25	10.0	**62.50**
....	**625167**	**426563**	240	50	20.0	**71.00**
718648	**625156**	**426552**	480	5	4.0	**59.75**
718651	**625159**	**426555**	480	10	8.0	**62.50**
718654	**625162**	**426558**	480	15	12.0	**65.30**
....	**625165**	**426561**	480	25	20.0	**69.45**
....	**625168**	**426564**	480	50	40.0	**79.50**

WESTINGHOUSE WATTHOUR METERS

TYPE OB SWITCHBOARD WATTHOUR METERS

METERS FOR USE WITH TRANSFORMERS

These meters are arranged for use with current capacities higher than those listed in the preceding table. The 100-volt meters listed below can be used with voltage transformers higher than those listed.

Single-Phase Meters

Catalog Number					Nom.	Price
25 Cycle	50 Cycle	60 Cycle	Volts	Amps.	Kw.	Each
426504	**625088**	**426525**	120	5	†0.5	**$26.85**
426505	**625089**	**426526**	240	5	†1.0	**28.25**
429595	**625091**	**429598**	120	5	*	**26.85**
429596	**625092**	**429599**	240	5	*	**28.25**

Polyphase Meters

718655	**625169**	**426568**	120	5	1.0	**48.25**
718656	**625170**	**426569**	240	5	2.0	**52.50**
718657	**625171**	**426570**	480	5	4.0	**59.75**
....	....	**426571**	600	5	5.0	**59.75**
718658	**625172**	**429605**	120	5	*	**48.25**
718659	**625173**	**429606**	240	5	*	**52.50**
718660	**625174**	**429607**	480	5	*	**59.75**
....	....	**429608**	600	5	*	**59.75**

2-Element Meters

....	**679513**	**679520**	120/208Y	5	*	**52.50**
....	**679510**	**679516**	120/208Y	5	2.0	**52.50**
....	**679514**	**679521**	277/480Y	5	*	**59.75**
....	**679511**	**679517**	277/480Y	5	2.0	**59.75**

3-Element Meters

537889	**625191**	**537881**	120/208Y	5	1.5†	**72.25**
537890	**625193**	**537882**	120/208Y	10	3.0†	**76.75**
537891	**625195**	**537883**	120/208Y	5	*	**72.25**
537892	**625197**	**537884**	120/208Y	10	*	**76.75**
537893	**625192**	**537885**	277/480Y	5	3.0†	**79.25**
537894	**625194**	**537886**	277/480Y	10	6.0†	**83.10**
537895	**625196**	**537887**	277/480Y	5	*	**79.25**
537896	**625198**	**537888**	277/480Y	10	*	**83.10**

Polyphase Meters with 2½ Ampere Series Coils for Use with Transformers

718661	**679490**	**679496**	120	2½	0.5†	**48.25**
718664	**679493**	**679500**	120	2½	*	**48.25**
718662	**679491**	**679497**	240	2½	1.0†	**52.50**
718665	**679494**	**679501**	240	2½	*	**52.50**
718663	**679492**	**679498**	480	2½	2.0†	**59.75**
718666	**679495**	**679502**	480	2½	*	**59.75**
....	....	**679499**	600	2½	2.5†	**59.75**
....	....	**679503**	600	2½	*	**59.75**

3-Element Meters with 2½ Ampere Series Coils for Use with Transformers

680610	**680612**	**680614**	120/208Y	2½	*	**72.25**
680604	**680606**	**680608**	120/208Y	2½	0.75†	**72.25**
680611	**680613**	**680615**	277/480Y	2½	*	**79.25**
680605	**680607**	**680609**	277/480Y	2½	1.5†	**79.25**

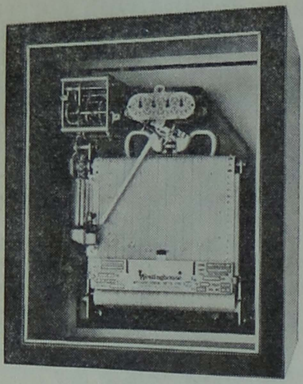
*These meters are supplied with registers of kw. capacity corresponding to the instrument transformer ratios specified on order.

†These meters are supplied with registers of kw. capacity of meters without transformers. When used with transformers, the reading must be multiplied by the ratio of the transformers.

WESTINGHOUSE WATTHOUR METERS

TYPE R-2 RECORDING DEMAND WATTHOUR METERS

With Synchronous Motor Clocks



Type R-2 Two-Element Recording Demand Meter—Hinged Cover

These two-element recording demand watthour meters measure both the kilowatt hours consumed and the integrated block interval demand. The kilowatt hours are indicated on a four-counter dial and the integrated block interval demand is recorded on a strip chart. Their accuracy and simplicity make them reliable for determining the block interval demand of power installations, particularly where a permanent record of the demand involving the time and length of occurance is desired.

A small hysteresis type of synchronous motor serves both to determine the time intervals and to furnish power for advancing the chart at the end of the time interval. The chart mechanism is arranged so that the preceding demand record for a number of hours is visible. This complete mechanism may be removed as a unit or swung to one side on a hinge when the meter element is being inspected or adjusted.

The chart re-roll is chain driven with a clutch mechanism to maintain even tension on the chart when it is advanced. This clutch requires no adjustment. The chart record is made by an ink-carrying pen fed by a large capacity reservoir, designed to permit the use of a quick drying ink, assuring legible charts under extreme atmospheric conditions.

Distinctive Features

Distinctive features of the demand watthour meters include:

1—May be installed as ordinary watthour meters requiring no additional apparatus or wiring not normally used with an ordinary watthour meter.

2—Measuring and recording elements are interconnected mechanically.

3—The synchronous motor timing permits obtaining simultaneous demand on two or more meters at widely separated points without the necessity of interconnecting tripping facilities.

4—The timing device and the chart mechanism are both driven by a small synchronous motor eliminating the use of handwound spring motors.

5—The terminals are arranged so that the meter may be connected either from the front or rear, making the meter suitable for wall or switchboard mounting.

6—Stud mounted covers are available for use where space limitations will not permit the use of hinged covers.

7—Potential indicating lamps are standard equipment.

8—The demand chart is of sufficient length and the ink reservoir provides sufficient ink for at least one month's operation, thus reducing the maintenance cost.

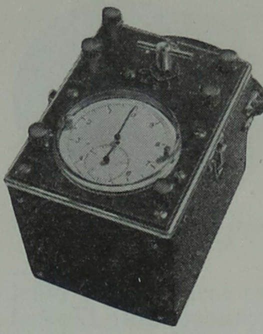
9—The metal cover with full glass front makes them thoroughly dustproof.

Complete data with prices on request.

WESTINGHOUSE WATTHOUR METERS

TYPE CP PORTABLE STANDARD WATTHOUR METERS

Single Phase—60 Cycles



Type CP 3-Range

Type CP portable standard meter is designed exclusively as a test instrument to obtain inherently better performance than can be secured from a standard service meter fitted with additional refinements and features. Built specifically for testing, it not only eliminates the use of a stop watch but also makes the calibration of house meters simple, fast and accurate.

Since the number of revolutions made by the meter under test is compared directly with the number of revolutions made by the standard meter in the same time, the result indicates by a very simple calculation the condition of the service meter.

Distinctive Features

High Accuracy—Under all conditions of load, voltage, frequency and temperature. Effective temperature compensation minimizes self-heating and ambient temperature errors on inductive and non-inductive loads. Overload compensation provides straight line curves up to 200% full load, making it possible to secure accurate results on any current settings from light load to double full load. Refined register and reset mechanism assure minimum friction. Silver-faced materials and greater thermal capacity in switch assure its constant performance.

High Thermal Capacity—Large conductors in series windings minimize errors due to heating under prolonged overload. Large low resistance potential coil windings assure sustained accuracy when operating on overvoltage or with ambient temperature changes.

Approximate shipping weight is 18 pounds. Dimensions: Length, 9 inches; width, 6½ inches; depth, 8 inches. Catalog number and list price include meter complete with push-button potential switch equipped with leads.

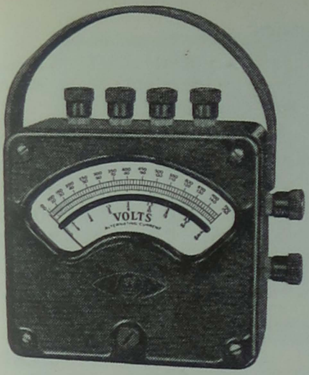
Catalog Number		Volts	Full Load Amps.	Price Each
50 Cycles	60 Cycles			
1055952	**1055968**	120-240	1- 5	**$128.60**
1055953	**1055969**	240-480	1- 5	**138.60**
1055954	**1055970**	120-240	1-10	**128.60**
1055955	**1055971**	240-480	1-10	**138.60**
1055956	**1055972**	120-240	1- 5-15	**142.85**
1055957	**1055973**	240-480	1- 5-15	**152.85**
1055958	**1055974**	120-240	1- 5-25	**142.85**
1055959	**1055975**	240-480	1- 5-25	**152.85**
1055960	**1055976**	120-240	1- 5-50	**142.85**
1055961	**1055977**	240-480	1- 5-50	**152.85**
1055962	**1055978**	120-240	1-10-25	**142.85**
1055963	**1055979**	240-480	1-10-50	**152.85**
1055964	**1055980**	120-240	1-10-50	**142.85**
1055965	**1055981**	240-480	1-10-50	**152.85**
1055966	**1055982**	120-240	1-5-10-25-50	**192.85**
1055967	**1055983**	240-480	1-5-10-25-50	**202.85**

Accessories

Cat. No.	Description	Price Each
333046	Potential Switch only	**$4.75**
362639	Switch and Leads for Single-Phase Meters	**7.25**
363640	Switch and Leads Complete for Polyphase Meters	**8.75**

WESTINGHOUSE PORTABLE INSTRUMENTS

TYPE PY-4 PORTABLE INSTRUMENTS



Type PY-4
Pocket Size Voltmeter

Length of scale—3.2 inches. The accuracy is within ¾ per cent on a.c. Terminal nuts are insulated. White lithographed metal dial. Knife-edge pointer and mirror dial. Shielded from negative fields. Movement repulsion iron vane. Case size is 4½x4½x2 inches.

Milliammeters

Single Range

For Frequencies of 15 to 500 Cycles

Cat. No.	Rating	Scale Divisions	Resistance Approx. Ohms	Price Each
682169	5	100	3850	$35.00
701314	10	100	730	30.00
936861	15	75	250	30.00
701315	25	125	115	30.00
936862	30	75	90	30.00
701316	50	100	29	30.00
936863	75	75	15	30.00
701317	100	100	7.2	30.00
936864	150	75	3.0	30.00
936865	200	100	1.5	30.00
701318	250	125	1.1	30.00
936866	300	75	.9	30.00
936867	400	80	.5	30.00
701319	500	100	.25	30.00
936868	600	60	.2	30.00
701320	750	75	.15	30.00

Double Range

For Frequencies of 15 to 200 Cycles

Cat. No.	Rating	Scale Divisions	Resistance Approx. Ohms	Price Each
682170	10 30	100 60	2500 275	35.00
682171	50 150	100 75	100 11	35.00
682172	250 750	125 75	2.5 3	35.00

Ammeters

Single Range

For Frequencies of 15 to 500 Cycles

Cat. No.	Rating	Scale Divisions	Resistance Approx. Ohms	Price Each
701306	1	100	.12	$30.00
936857	1.5	75	.1	30.00
936858	2	100	.04	30.00
701307	2.5	125	.017	30.00
936859	3	75	.015	30.00
701308	5	100	.011	30.00
701309	7.5	75	.008	30.00
701310	10	100	.0014	30.00
701311	15	75	.0010	30.00
701312	25	125	.0006	30.00
936860	30	60	.0005	30.00
701313	50*	100	.0003	30.00

Any of above capacities may be supplied with follow up pointer for measurement of starting current at **$10.00** list additional.

Double Range

For Frequencies of 15 to 200 Cycles

Cat. No.	Rating	Scale Divisions	Resistance Approx. Ohms	Price Each
682166	1 5	100 100	.14 .008	35.00
682167	5 10	100 100	.008 .0036	35.00
682168	10 30	100 60	.0036 .0009	35.00

These instruments have two separate scale arcs.
*For frequencies of 15 to 133 cycles.

WESTINGHOUSE PORTABLE INSTRUMENTS

TYPE PY-4 — PORTABLE INSTRUMENTS

Voltmeters

Single Range

For Frequencies of 15 to 200 Cycles

Cat. No.	Rating	Scale Divisions	Resistance Approx. Ohms	Price Each
701296	1	100	1.75	$30.00
701297	3	60	19	30.00
701298	7.5	75	75	30.00
936360	10	100	100	30.00
701299	15	75	300	30.00
936869	20	100	400	30.00
701300	30	60	1200	30.00
936361	50	100	2000	30.00
936870	60	60	2880	30.00
701301	75	75	6000	30.00
936362	100	100	8700	31.00
936871	125	125	12500	31.00
701302	150	75	19000	32.00
936872	250	125	28000	35.00
701303	300	60	38000	37.50
701304	600	60	120000	41.00
701305	750	75	150000	44.50

Double Range

936363	5–10	100	28–56	35.00
936364	10–20	100	100–200	35.00
936365	15–20	75	300–600	35.00
936366	30–60	60	1200–2400	35.00
682164	15–150	75	460–4600	37.00
936367	75–150	75	6000–12000	40.00
820036	150–300	150	21600–43200	42.50
703872	150–300	150	45000–90000	46.00
682165	150–600	75	21600–86400	46.00

Triple Range

682163	4–8–150	80–75	18–36–16900	42.00
936368	150–300–450	75	21600–43200–64800	48.00
936369	150–300–600	75	21600–43200–86400	51.00
936370	150–300–750	75	21600–43200–108000	54.00

These instruments have two separate scale arcs.

Five Range

682162	4–8–16 150–750	80 75	18–36–72 16900–84500	60.00

This instrument has two separate scale arcs.

Leads

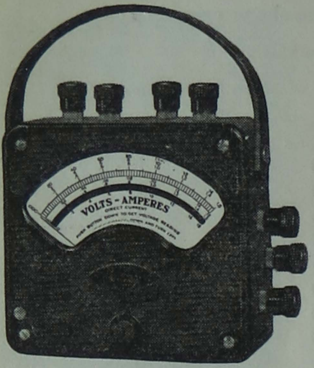
	Cat. No.	Price Each
Test Leads (one pair)	818183	$2.00

Carrying Cases

Leather Carrying Case for one PY-4 Instrument	525431	7.00
Leather Carrying Case for two PY-4 Instruments	495932	7.50
Leather Carrying Case for three PY-4 Instruments	628048	7.50

WESTINGHOUSE PORTABLE INSTRUMENTS

TYPE PX-4 PORTABLE INSTRUMENTS



For general testing purposes where small sized, direct current instrument easily carried is desired. Pocket size Moldarta cases. Wide range of capacities for every direct current need. Case size 4½ x 4½ x 2 inches. Scale length 3.5 inches. Accuracy direct current within ¾%. Not shielded from external magnetic fields. Instrument elements mounted on Moldarta plate which supports all resistance spools and shunts. Available from front of case by removing plate. Terminals provided with non-removable nuts. White lithographed metal dial with black figures. Clamped-tight glass window is dust-proof. Mirror dial, knife-edged pointer. Cobalt steel magnet used when low energy consumption is essential. Shipping weight, 5½ pounds, cobalt magnet types, 6½ pounds. Catalog number and price include instrument complete as listed, except that triple-range ammeter with portable combination shunts includes the shunt and one pair of leads. A pair of leads and cadmium test electrodes are included with cadmium test voltmeters.

Milliammeters

Single Range — Self-Contained

Cat. No.	Capacity	Scale Divisions	Resistance Approx. Ohms	Price Each
836818	1	100	109	$31.00
423258	2	100	28	31.00
423259	5	100	5	30.00
423260	10	100	2.6	30.00
423261	25	50	.708	30.00
423262	50	100	1.	30.00
423263	100	100	.5	30.00
423264	150	75	.33	30.00
423265	250	50	.2	30.00
836819	500	100	.1	30.00
836820	750	75	.066	30.00
936371	1000	100	.05	30.00
936372	1500	75	.033	30.00

Double Range — Self-Contained

Cat. No.	Capacity	Scale Divisions	Resistance Approx. Ohms	Price Each
838281	1–10	100	140–14	36.00
838282	15–150	75	3.5–.35	35.00
838283	100–500	100	.5–.1	35.00
838284	150–750	75	.33–.006	35.00

Triple Range — Self-Contained

Cat. No.	Capacity	Scale Divisions	Resistance Approx. Ohms	Price Each
936374	3–7.5–30	75	21– 5.7–2.3	40.00
936375	1.5–15–150	75	280–31 –3.1	40.00
936376	7.5–30–150	75	22.5–6.2 –1.2	40.00
936377	15–150–1500	75	12–1.2 –.12	40.00
936378	30–300–3000	75	1.66– .16–.016	40.00
936379	150–750–3000	75	.33–.066–.016	40.00

WESTINGHOUSE PORTABLE INSTRUMENTS

TYPE PX-4 PORTABLE INSTRUMENTS

Ammeters

Single Range* — Self-Contained

Cat. No.	Capacity	Scale Divisions	Price Each
838273	1	100	$30.00
838274	2.5	50	30.00
838275	5	100	30.00
838276	10	100	30.00
838277	15	75	30.00
838278	25	50	30.00
838279	50	100	30.00

Double Range* — Self-Contained

Cat. No.	Capacity	Scale Divisions	Price Each
423266	.25–2.5	50	35.00
423267	.5–5	100	35.00
423268	1–5	100	35.00
423269	1–10	100	35.00
423270	2–10	100	35.00
423271	1.5–15	75	35.00
423272	2–20	100	35.00
423273	4–20	40	35.00
423274	6–30	60	35.00
838280	10–50	100	35.00

Triple Range, with Portable Combination Shunts†

Cat. No.	Capacity	Scale Divisions	Price Each
424396	5–20–200	100	55.00
424397	3–30–300	60	55.00

*These instruments are shunted internally and have a drop of 50 M.V. plus or minus 10%.

†Triple range instruments and shunts in this group have 50 M.V. drops. Catalog number and price includes shunt and leads.

Voltmeters

Resistance 1000 Ohms per Volt

Single Range —Self-Contained

Cat. No.	Capacity	Scale Divisions	Price Each
936380	1	100	$31.00
936381	2.5	50	31.00
936382	5	100	32.00
936383	15	75	32.00
936384	50	100	33.00
936385	150	75	35.00
936386	300	75	37.00
936387	600	60	42.00
936388	750	75	46.00

Double Range — Self-Contained

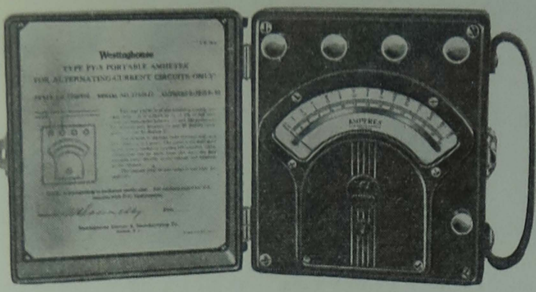
Cat. No.	Capacity	Scale Divisions	Price Each
936391	2.5–10	100	37.00
936389	3–15	60	37.00
936392	10–50	100	38.00
936390	3–150	60	40.00
512824	8–200	80	40.00
936393	10–100	100	39.00
936394	15–150	75	40.00
516629	75–150	75	40.00
516583	50–250	50	42.00
936395	150–300	75	42.00
936396	75–750	75	51.00
936397	300–600	60	47.00
936398	150–750	75	51.00

Triple Range — Self-Contained

Cat. No.	Capacity	Scale Divisions	Price Each
936399	1.5– 15–150	75	45.00
936400	3– 7.5– 30	75	43.00
936401	3– 15–150	60	45.00
936402	3–150–300	60	47.00
936403	7.5– 30– 75	75	43.00
936404	7.5–300–750	75	56.00
838272	50–250–750	50	56.00
936405	75–300–750	75	56.00
936406	150–300–750	75	56.00

WESTINGHOUSE PORTABLE INSTRUMENTS

TYPE PY-5 — ALTERNATING CURRENT



PY-5 Ammeter

Moving iron-voltmeters and ammeters. Electro-dynamometer-wattmeter. Shielded from magnetic fields. The voltmeters and double-range ammeters and milliammeters are for use on frequencies up to 133 cycles. The wattmeter is for D.C. and A.C. up to 133 cycles. Length of scale, 5 inches. The accuracy is ½ per cent. Weight net, 6 pounds; shipping, 9 pounds. Dimensions, approximately 7¼ x 8 1/16 x 4 inches deep.

Milliammeters

Single Range — Self-Contained

Cat. No.	Rating	Scale Div.	Resistance Approx. Ohms	Burden Full Scale V-A.	Price Each
701335	10	100	3900	.53	**$56.00**
701336	25	125	580	.53	**56.00**
701337	50	100	142	.53	**56.00**
936227	75	150	62	.53	**56.00**
701338	100	100	37	.53	**56.00**
936228	150	150	15.4	.53	**56.00**
701339	250	125	5.8	.53	**56.00**
701340	500	100	2.3	.53	**56.00**
701341	750	150	1.1	.53	**56.00**

Double Range — Self-Contained

Cat. No.	Rating	Scale Div.	Resistance Approx. Ohms	Burden Full Scale V-A.	Price Each
701342	20–40	100–100	556–410	.53–.68	**71.00**
701343	50–150	100–150	117–32	.53–.68	**71.00**
701344	250–750	125–150	6.91–1.26	.53–.68	**71.00**

Ammeters

Single Range — Self-Contained

Cat. No.	Rating	Scale Div.	Resistance Approx. Ohms	Burden Full Scale V-A.	Price Each
701345	1	100	.35	.53	**56.00**
701346	2.5	125	.058	.53	**56.00**
936229	3	150	.0635	.53	**56.00**
701347	5	100	.0162	.53	**56.00**
701348	10	100	.0052	.53	**56.00**
701349	15	150	.0017	.53	**60.00**
701350	25	125	.00065	.6	**60.00**
701351	50	100	.00044	1.0	**62.00**
930603	75	150	.0002	1.3	**62.00**
701352	100	100	.00022	2.2	**65.00**
936230	150	150	.00009	3.0	**68.00**
936231	200	100	.00005	3.0	**71.00**
877182	300	150	.000065	6.0	**77.00**
1008500	400	100	....	3	**85.00**
1008501	500	100	....	3	**85.00**

Double Range — Self-Contained

Cat. No.	Rating	Scale Div.	Resistance Approx. Ohms	Burden Full Scale V-A.	Price Each
701354	5–10	100	.0172	.53–.81	**71.00**

Voltmeters

Single Range — Self-Contained

Cat. No.	Rating	Scale Div.	Resistance Approx. Ohms	Burden Full Scale V-A.	Price Each
701321	15	150	45	5.0	**$58.00**
701322	30	150	175	5.0	**58.00**
701323	75	150	1100	5.0	**58.00**
936238	125	125	3120	5.0	**58.00**
701324	150	150	4400	5.0	**58.00**
936239	250	125	12500	5.0	**61.00**
701325	300	150	17500	5.0	**62.00**
936240	500	100	40000	6.25	**67.00**
701326	600	120	47000	7.50	**70.00**
701327	750	150	75000	10.00	**74.00**

WESTINGHOUSE PORTABLE INSTRUMENTS

TYPE PY-5 — ALTERNATING CURRENT

Voltmeters

Double Range — Self-Contained

Cat. No.	Rating	Scale Div.	Resistance Approx. Ohms	Burden Full Scale V-A	Price Each
701328	75–150	150	1130–2200	5–10	**$63.00**
701329	150–300	150	4400–8800	5–10	**67.00**
701330	150–600	150	4400–17600	5–20	**75.00**
701331	300–600	150	17500–35000	5–10	**75.00**
936241	150–750	150	4400–22000	5–25	**79.00**
701332	300–750	150	17500–63000	5–12.5	**79.00**

Dynamometer voltmeters may be supplied on special order at **$20.00** list additional.

Triple Range— Self Contained

Cat. No.	Rating	Scale Div.	Resistance Approx. Ohms	Burden Full Scale V-A	Price Each
936242	150–300–600	150	4400–8700–17600	5–10–20	**$80.00**
701334	75–150–300	150	1100–2200–4500	5–10–20	**73.00**
701333	150–300–750	150	4400–8700–24000	5–10–25	**84.00**

Six Range— Self-Contained

Cat. No.	Rating	Scale Div.	Resistance Approx. Ohms	Burden Full Scale V-A	Price Each
936243	3–15–75 150–300– 750*	150	6–30–800 1600–13000– 32000	1,5,7.5, 7.0,14.0 6.9,17.2	**115.00**

*Frequency Range 15 to 70 Cycles.

Volt-Ammeters

Self-Contained

Cat. No.	Rating	Scale Div.	Resistance Approx. Ohms	Burden Full Scale V-A	Price Each
877057	75 volts	150	1130	5	**$80.00**
	150 volts	150	2260	10	
	1 amp.	100	.6	.67	
	5 amps.	100	.02	.69	
877058	75 volts	150	1130	5	**80.00**
	150 volts	150	2260	10	
	5 amps.	100	.02	.55	
	10 amps.	100	.01	1.1	
877059	75 volts	150	1130	5	**84.00**
	150 volts	150	2260	10	
	5 amps.	100	.015	.41	
	25 amps.	100	.0014	.96	
877060	150 volts	150	4400	5	**84.00**
	300 volts	150	8800	10	
	1 amp.	100	.60	.67	
	5 amps.	100	.021	.69	
877061	150 volts	150	4400	5	**84.00**
	300 volts	150	8800	10	
	5 amps.	100	.020	.55	
	10 amps.	100	.010	1.1	
877062	150 volts	150	4400	5	**88.00**
	300 volts	150	8800	10	
	5 amps.	100	.015	.41	
	25 amps.	100	.0014	.96	
877063	150 volts	150	4400	5	**96.00**
	750 volts	150	22000	25	
	1 amp.	100	.6	.67	
	5 amps.	100	.020	.69	
877064	150 volts	150	4400	5	**96.00**
	750 volts	150	22000	25	
	5 amps.	100	.020	.55	
	10 amps.	100	.010	1.1	
877065	150 volts	150	4400	5	**100.00**
	750 volts	150	22000	25	
	5 amps.	100	.015	.41	
	25 amps.	100	.0014	.96	

WESTINGHOUSE PORTABLE INSTRUMENTS

TYPE PY-5 — ALTERNATING CURRENT

Wattmeters*

Single Range — Self-Contained

Cat. No.	Amperes	Volts	Approx. Resist.		Price Each
			Low Rge.	High Rge.	
701403	1	20–40	260	520	**$85.00**
701407	2.5	20–40	260	520	**85.00**
701408	5	20–40	260	520	**85.00**
701409	10	20–40	260	520	**85.00**
701410	25	20–40	260	520	**85.00**
701411	50	20–40	260	520	**85.00**
701412	1	50–100	1650	3300	**85.00**
701413	2.5	50–100	1650	3300	**85.00**
701414	5	50–100	1650	3300	**85.00**
701415	10	50–100	1650	3300	**85.00**
701416	25	50–100	1650	3300	**85.00**
701417	50	50–100	1650	3300	**85.00**
701418	1	100–200	6500	13000	**85.00**
701419	2.5	100–200	6500	13000	**85.00**
701420	5	100–200	6500	13000	**85.00**
701421	10	100–200	6500	13000	**85.00**
701422	25	100–200	6500	13000	**85.00**
701423	50	100–200	6500	13000	**85.00**
704061	1	100–500	8650	43747	**95.00**
704062	2.5	100–500	8650	43747	**95.00**
704063	5	100–500	8650	43747	**95.00**
704064	10	100–500	8650	43747	**95.00**
704065	25	100–500	8650	43747	**95.00**
704066	50	100–500	8650	43747	**95.00**

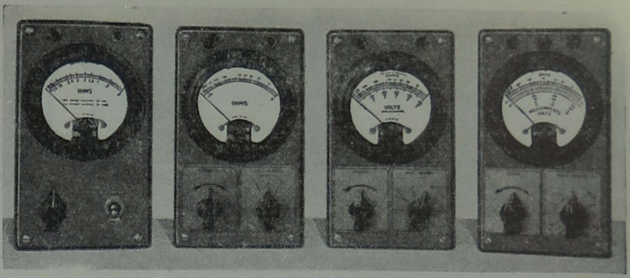
Double-Current Ranges — Self-Contained

Cat. No.	Amperes	Volts	Low Rge.	High Rge.	Price Each
839677	.5–1	50–100	1650	3300	**110.00**
839678	1–2	50–100	1650	3300	**110.00**
839679	2.5–5	50–100	1650	3300	**110.00**
839680	5–10	50–100	1650	3300	**110.00**
839681	10–20	50–100	1650	3300	**110.00**
839682	15–30	50–100	1650	3300	**110.00**
839683	30–60	50–100	1650	3300	**110.00**
839684	.5–1	100–200	6500	13000	**110.00**
839685	1–2	100–200	6500	13000	**110.00**
839686	2.5–5	100–200	6500	13000	**110.00**
839687	5–10	100–200	6500	13000	**110.00**
839688	10–20	100–200	6500	13000	**110.00**
839689	15–30	100–200	6500	13000	**110.00**
839690	30–60	100–200	6500	13000	**110.00**
839691	.5–1	100–500	8500	42500	**120.00**
839692	1–2	100–500	8500	42500	**120.00**
839693	2.5–5	100–500	8500	42500	**120.00**
839694	5–10	100–500	8500	42500	**120.00**
839695	10–20	100–500	8500	42500	**120.00**
839696	15–30	100–500	8500	42500	**120.00**
839697	30–60	100–500	8500	42500	**120.00**

*Current and voltage ratings listed are normal and instructions are suitable for continuous use at 50 per cent above normal rating for both current and potential. Full scale value in watts is the product of normal current and voltage rating.

WESTINGHOUSE PORTABLE TEST UNITS

TYPES PX AND PM



Type PX-25 Double Range Ohmmeter — **Type PX-25 Triple Range Ohmmeter** — **Type PX-26 D.C. Volt Ohmmeter** — **Type PM-32 A.C. and D.C. Test Unit**

Portable test units are compact, pocket-size measuring instruments used for general a.c. and d.c. testing in industrial plants, laboratories and in radio work. Ohmmeters are for circuit resistance continuity and insulation testing in assembled apparatus. They are also sufficiently accurate for resistor classification and for leakage limit testing of condensers. Volt ohmmeters are for exploration and trouble shooting in complex circuits such as radios, public speech amplifiers, signal systems, talking movie sets, industrial motor and control systems.

No external source of power required — battery power self-contained. Pin jacks provide easy means of connection to external circuits. Rubber-covered leads with insulated prod terminals provided. Small size permits holding in hand. Selector switches on face for quick, easy selection of desired range. High initial and permanently-maintained accuracy. Knife-edge pointers. Front external screw for zero adjustment. Strong Moldarta case does not warp or split. Units have improved d'Arsonval movement. Catalog number includes test unit complete with one set of rubber-covered leads. Approximate net weight, 3 pounds.

Type PX-25 Ohmmeters

Double Range

Cat. No.	Full Scale Ohms	Mid-Scale Ohms	Price Each
931318	10– 1000	2– 50	**$25.00**
930067	5000– 50000	200–2000	**22.50**
931319	1000–100000	50– 500	**22.50**

Triple Range

Cat. No.	Full Scale Ohms	Mid-Scale Ohms	Price Each
876813	1000	50	**$30.00**
	100000	5000	
	1000000	50000	

Type PX-26 D.C. Volt Ohmmeter

Ohms per Volt — 1000

Cat. No.	Full Scale Ohms	Mid-Scale Ohms	Volts D.C.	Price Each
876814	1000	50	5	**$32.50**
	100000	5000	50	
	1000000	50000	500	

Type PX-37 D.C. Test Unit

Ohms per Volt — 1000

Cat. No.	Full Scale Ohms	Mid-Scale Ohms	Volts D.C.	Milli-Amps. A.C.	Milli-Amps. D.C.	Price Each
931317	200	6	2.5	......	1	**$55.00**
	1000	30	25	......	10	
	100000	3000	250	......	100	
	10000000	300000	1000	......	......	

Type PM-32 A.C.-D.C. Test Unit

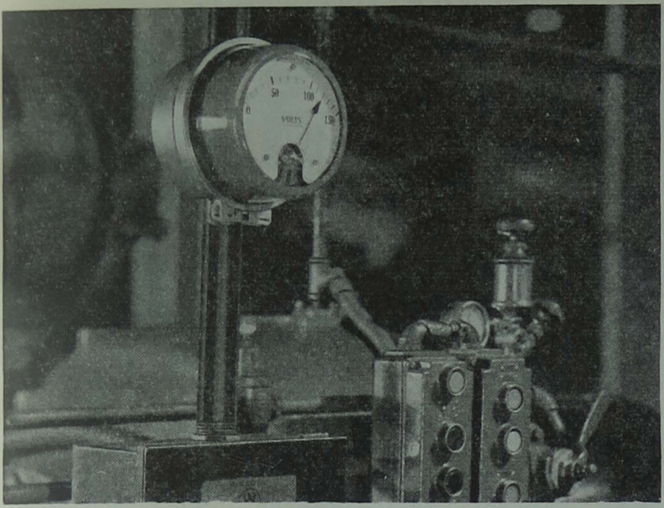
Cat. No.	Full Scale Ohms	Mid-Scale Ohms	Volts D.C.	Milli-Amps. A.C.	Milli-Amps. D.C.	Price Each
930380	1000	50	1.5	15	15	**$60.00**
	100000	5000	15	150	150	
	1000000	50000	150	......	......	
	....	....	750	......	......	

Carrying Case

Single unit leather carrying case for any of above units: Cat. No. 931331. Price, **$5.00** each.

WESTINGHOUSE SOCKET INSTRUMENTS

TYPE E SOCKET INSTRUMENTS—A-C.



A complete line of low-cost ammeters, voltmeters, wattmeters, watthour meters and recorders. Easy to install and can be used extensively throughout industrial plants in permanent locations. Socket instruments consist of two main units; a socket or mounting device, and an instrument mechanism enclosed in a weather-proof glass housing.

Data

Scale Length:	5¼ inches.
Dial:	Full open face, white with black figures.
Accuracy:	Within plus or minus 1%.
Size:	6 31/32-inches diameter by 5⅞-inches, 7 13/16-inches deep.
Mounting:	For plugging into sockets which may be mounted in conduit, built-in machine, or fastened to wall.
Case:	Extra strength annealed glass.
Type EA:	Repulsion iron vane measuring element for A-C. ammeters and voltmeters. Can be used on D-C. with limited accuracy. Approximate weights: net, 4 pounds; shipping 5 pounds.
Sockets:	Type S-2 with sealing ring. Consists of die-cast ring on box of sheet aluminum alloy. Net weight 4¾ pounds, shipping weight 13 pounds. Types S, S-5 and S-6 with sealing ring. Net weight 2 pounds, shipping weight 4 pounds.
Glass Cover:	For socket. Net weight 1 pound, shipping weight 3 pounds.

After socket has been installed on a machine, any socket type electrical instrument can be plugged into the circuit instantly so that facts about line voltage, current and power can be determined, without interfering in any way with production. Instrument installation costs on individual motor, lighting or process circuits are cut practically in half by use of sockets.

On existing circuits, conduit is cut, threaded and screwed into tapped openings in socket, and wiring is easily connected to convenient terminals. No special mounting is required, the socket being entirely self-supporting. Operations connected with use of socket instruments are completely dead-front, no special protection or interruption of service being needed.

WESTINGHOUSE SOCKET INSTRUMENTS

TYPE E SOCKET INSTRUMENTS—A-C.

3-Phase, 3-Wire Instruments

Type EA—A-C. Ammeters

Measures Current in Line 1

Cat. No.	Rating*	Scale Div.	Price Each
938528	0–5	50	**$28.00**
938529	0–10	50	**28.00**
938530	0–15	30	**32.00**
938531	0–25	50	**32.00**
938532	0–30	30	**32.00**
938533	0–50	50	**34.00**
938534	0–75	75	**34.00**
	Calibrated for Use with Transformers 5-Ampere Coil		
939233	Uncal.†	....	**28.00**
938535	0–10	50	**28.00**
938536	0–15	30	**28.00**
938537	0–25	50	**28.00**
938538	0–50	50	**28.00**
938539	0–75	75	**28.00**
938540	0–100	50	**28.00**
938541	0–150	30	**28.00**
938542	0–200	40	**28.00**
938543	0–300	30	**28.00**
938544	0–400	40	**28.00**
938545	0–500	50	**28.00**
938546	0–600	30	**28.00**
938547	0–800	40	**28.00**
938548	0–1000	50	**28.00**
938549	0–1500	30	**28.00**
938550	0–2000	40	**28.00**
938551	0–3000	30	**28.00**
938552	0–4000	40	**28.00**
938553	0–5000	50	**28.00**

Type EA—A-C. Voltmeters

Measures Voltage Between Lines 1 and 3
Self-Contained

Cat. No.	Rating*	Scale Div.	Price Each
938554	0–150	30	**30.00**
938555	0–300	30	**34.00**
938556	0–600	30	**42.00**

Type EY—Polyphase Wattmeters

With 2 Current Coils and 2 Voltage Coils

Cat. No.	Amperes	Volts	Price Each
	Self-Contained		
938569	5‡	115¶‡	**$76.00**
938570	10	115	**76.00**
938571	20	115	**76.00**

ACCESSORIES

Test Jack Cat. No.	Price Ea.	Insert Socket Cat. No.	Price Ea.
1055810	**$23.00**	**1056868**	**$22.00**

Test Jack Cables

Cat. No.	For Connecting	Amp. Capacity of Cable	Price Each
1002483	TA Analyzer	125	**$20.00**
1003851	G-40 Recorder	20	**15.00**

Type S-5, 5-Jaw Sockets

With Two Threaded Outlets and Circuit-Closing Device on Both Sides

Size of Outlet in Inches	Vertical		Horizontal	
	Cat. No.	Price Ea.	Cat. No.	Price Ea.
¾	**934315**	**$4.15**	**934318**	**$4.50**
1	**934316**	**4.05**	**934319**	**4.40**
1¼	**934317**	**4.15**	**934320**	**4.50**

*For higher ratings refer to nearest district office.

†5-Ampere Coil. Dial uncalibrated. Specify transformer ratio and dial marking.

‡These ratings calibrated as desired for use with transformers.

¶For circuits higher than 115 volts, voltage transformers must be used.

WESTINGHOUSE SWITCHBOARD INSTRUMENTS

TYPE HA—A-C. AMMETERS

5½-Inch Square Types

0
200
400
600
800
AMPERES

Type HA

Cover practically entire range of direct and alternating current applications. Available in power and radio frequency types. Also, in Rectox types, comprising a d'Arsonval movement with copper oxide rectifier, desirable for special a-c. measurements where instrument energy requirements must be kept minimum. Catalog number and price include instrument complete as listed. Black dial can be supplied on special order at $5.00 additional.

Self-Contained

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
5	50	931739	$39.00	724200	$35.00
10	50	931740	39.00	721733	35.00
15	30	931741	43.00	721734	39.00
25	50	931742	43.00	721735	39.00
30	30	931743	43.00	721736	39.00
40	40	931744	45.00	721737	41.00
50	50	931745	45.00	721738	41.00
60	30	931746	45.00	721739	41.00
75	75	931747	45.00	721740	41.00

A-c. ammeters can be supplied on order as low as 10 milliamperes full scale.

With Five-Ampere Coils
Calibrated for Use with Transformers

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
10	50	931748‡	39.00	724201	35.00
15	30	931749‡	39.00	724202	35.00
20	40	931750‡	39.00	724203	35.00
25	50	931751	39.00	724204	35.00
30	30	931752‡	39.00	724205	35.00
40	40	931753‡	39.00	724206	35.00
50	50	931754	39.00	724207	35.00
60	30	931755‡	39.00	724208	35.00
75	75	931756	39.00	724209	35.00
80	40	931757‡	39.00	724210	35.00
100	50	931758	39.00	724211	35.00
150	30	931759	39.00	724212	35.00
200	40	931760	39.00	724213	35.00
250	50	931761	39.00	724214	35.00
300	30	931762	39.00	724215	35.00
400	40	931763	39.00	724216	35.00
500	50	931764	39.00	724217	35.00
600	30	931765	39.00	724218	35.00
800	40	931766	39.00	724219	35.00
1000	50	931767	39.00	724220	35.00
1500	30	931768	39.00	724221	35.00
2000	40	931769‡	39.00	724222	35.00
3000	30	931770	39.00	724223	35.00
4000	40	931771‡	39.00	724224	35.00
5000	50	931772	39.00	724225	35.00

Calibrated as Required
for Capacities Not Listed Above

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
.1*	....	1059786	44.00	1059787	40.00
2.5*	....	931773	39.00	721726	35.00
3*	....	931774	39.00	721727	35.00
4*	....	931775	39.00	721728	35.00
5*	....	931776	39.00	721729	35.00
6*	....	931777	39.00	721730	35.00
7.5*	....	931778	39.00	721731	35.00
10*	....	931779	39.00	721732	35.00

*Specify transformer ratio and scales desired.

‡Normally carried uncalibrated or partially assembled for quick shipment.

WESTINGHOUSE SWITCHBOARD INSTRUMENTS

TYPE HA—A-C. VOLTMETERS

5½-Inch Square Types

Self-Contained

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
150	30	931780	$41.00	721721	$37.00
300	30	931781	45.00	721723	41.00
600*	30	931782	53.00	721724	49.00
750*	75	931783	57.00	721725	53.00

150-Volt Coils
Calibrated for Use with Transformers

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
3000	30	931784	41.00	797174	37.00
6000‡	30	1059788	41.00	1059790	37.00
9000*‡	45	1059789	41.00	1059791	37.00

150-Volt Coils
Calibrated as Required
for Capacities Not Listed Above

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
150*	....	931786	41.00	721720	37.00

TYPE HY—A-C. SINGLE-PHASE WATTMETERS

Amp.	Volts	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
5	120	931787	$64.00	721741‡	$60.00
5	240*	931788	68.00	721742	64.00
5	480*	931789	73.00	721743	69.00
5	600*	156626	73.00	1156634	69.00
10	120	931790	64.00	721744	60.00
10	240*	931791	68.00	721745	64.00
10	480*	931792	73.00	721746	69.00
10	600	1156627	73.00	1156635	69.00

Above instruments available with Current Coils from 0.1 to 20 amperes.

TYPE HY—A-C. POLYPHASE WATTMETERS

2-Phase, 4-Wire—2-Phase, 3-Wire—3-Phase, 3-Wire
With 2 Current Coils and 2 Voltage Coils

Amp.	Volts	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
4	115	931793	94.00	721747‡	90.00
5	115	931794‡	94.00	721748‡	90.00
7.5	115	931795	94.00	721749‡	90.00
10	115	931796	94.00	721750	90.00
5	240*	931797	102.00	721751	98.00
7.5	240*	931798	102.00	721752	98.00
10	240*	931799	102.00	721753	98.00
5	480*	931800	112.00	721755	108.00
7.5	480*	931801	112.00	721756	108.00
10	480*	931802	112.00	721757	108.00
5	600*	931803	112.00	721758	108.00
7.5	600*	931804	112.00	721759	108.00
10	600*	931805	112.00	721760	108.00

Above instruments available with Current Coils from 0.1 to 20 amperes.

3-Phase, 4-Wire
With 3 Current Coils and 2 Voltage Coils

Amp.	Volts	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
4	120	931806	104.00	797870	100.00

Specify scales and transformer ratios and provide connection diagram.

TYPE HA—SYNCHROSCOPE

Volts	Frequency	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
120	25	931828	$119.00	818648	$115.00
120	60	931829	119.00	818154	115.00
240	25	931830	139.00	820810	135.00
240	60	931831	139.00	820809	135.00

*Supplied with external resistor.

‡Scales marked in kilovolts.

*Specify transformer ratios and scales desired.

All HY instruments calibrated as desired for use with transformers. Specify scales and transformer ratios.

WESTINGHOUSE SWITCHBOARD INSTRUMENTS

TYPE HX—D-C. AMMETERS

5½-Inch Square Types

Black dials can be supplied on all types on special order at **$5.00** list additional (**$15.00** for Triplex Instruments). Internal illumination (6 volt) can be supplied on all types, at **$7.50** list additional (**$15.00** for Triplex Instruments). When ordering, specify similar to Catalog Numbers below with "Black Dial" or "Illumination."

Self-Contained

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
1	50	**931857**	**$48.50**	**721982**	**$44.50**
2	40	**931859**	**48.50**	**721984**	**44.50**
3	30	**931861**	**48.50**	**721986**	**44.50**
5	50	**931863**	**48.50**	**721988**	**44.50**
10	50	**931866**	**48.50**	**721991**	**44.50**
15	30	**931867**	**48.50**	**721992**	**44.50**
25	50	**931869**	**48.50**	**721994**	**44.50**
30	30	**931870**	**48.50**	**931614**	**44.50**
40	40	**931871**	**48.50**	**931615**	**44.50**
50	50	**931872**	**48.50**	**931616**	**44.50**
60	30	**931873**	**48.50**	**931617**	**44.50**
For Use with 50 Millivolt Shunts					
5	50	**931833**	**43.00**	**797776**	**39.00**
10	50	**931834**	**43.00**	**797777**	**39.00**
15	30	**931835**	**43.00**	**797778**	**39.00**
25	50	**931836**	**43.00**	**797779**	**39.00**
50	50	**931837**	**43.00**	**797780**	**39.00**
75	75	**931838**	**43.00**	**797781**	**39.00**
100	50	**931839**	**43.00**	**797782**	**39.00**
150	30	**931840**	**43.00**	**797783**	**39.00**
200	40	**931841**	**43.00**	**797784**	**39.00**
250	50	**931842**	**43.00**	**797785**	**39.00**
300	30	**931843**	**43.00**	**797786**	**39.00**
400	40	**931844**	**43.00**	**797787**	**39.00**
500	50	**931845**	**43.00**	**797788**	**39.00**
600	30	**931846**	**43.00**	**797789**	**39.00**
800	40	**931847**	**43.00**	**797790**	**39.00**
1000	50	**931848**	**43.00**	**797791**	**39.00**
1500	30	**931849**	**43.00**	**797792**	**39.00**
2000	40	**931364**	**43.00**	**797793**	**39.00**
2500	50	**934850**	**43.00**	**797794**	**39.00**
3000	30	**931851**	**43.00**	**797795**	**39.00**
4000	40	**931852**	**43.00**	**797796**	**39.00**
5000	50	**931853**	**43.00**	**797797**	**39.00**
6000	30	**931854**	**43.00**	**797798**	**39.00**
8000	40	**931855**	**43.00**	**797799**	**39.00**
10000	50	**931856**	**43.00**	**797800**	**39.00**
For Use with Long Leads or for Ratings Not Listed					
Same as Shunt		**931832***	**43.00**	**818170**	**39.00**
Same as Shunt		**1157808†**	**48.00**	**938846**	**44.00**
Same as Shunt		**1157809‡**	**53.00**	**938847**	**49.00**
Same as Shunt		**1157810§**	**58.00**	**938848**	**54.00**

Price and catalog numbers do NOT include leads or shunts. If leads are not to be furnished, specify exact lead resistance when ordering.

*Use with leads of 0.10 ohms resist. or less.
†Use with leads of 0.33 ohms resist. or less.
‡Use with leads of 1.96 ohms resist. or less.
§Use with leads of 11.10 ohms resist. or less.

MILLIAMMETERS

Cap.	Approx. Resist. Ohms	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
0.5	470.0	**931889**	**$45.00**	**721995**	**$41.00**
1	193.0	**931890**	**45.00**	**721996**	**41.00**
5	10.8	**931896**	**43.00**	**722002**	**39.00**
10	5.9	**931899**	**43.00**	**722005**	**39.00**
50	1.0	**931905**	**43.00**	**722011**	**39.00**
100	0.5	**931908**	**43.00**	**722014**	**39.00**
500	0.1	**931914**	**43.00**	**722020**	**39.00**

Note: Scale divisions, all capacities, 50.

WESTINGHOUSE SWITCHBOARD INSTRUMENTS

TYPE HX—D-C. VOLTMETERS

5½-Inch Square Types

Self-Contained

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
1	50	**931961**	**$43.00**	**722045**	**$39.00**
8	40	**931969**	**43.00**	**722053**	**39.00**
15	30	**931971**	**43.00**	**722055**	**39.00**
30	30	**931974**	**43.00**	**722058**	**39.00**
100	50	**931979**	**43.00**	**722063**	**39.00**
150	30	**931980**	**43.00**	**722064**	**39.00**
300	30	**931983**	**47.00**	**722067**	**43.00**
500	50	**931985**	**50.00**	**722069**	**46.00**
600	30	**931986**	**55.00**	**722070**	**51.00**
800	40	**931987**	**59.00**	**722071**	**55.00**
150-0-150*	30	**931875**	**43.00**	**722112**	**39.00**
300-0-300*	30	**931874**	**47.00**	**722111**	**43.00**

*Ground detector voltmeters.

For higher ratings, refer to us.

TYPE HX RECTIFIER TYPES

d'Arsonval Movement with Westinghouse Rectox for Low Energy A-C. Measurements

MILLIAMMETERS

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
0.5	50	**931876**	**$50.00**	**722073**	**$46.00**
1	50	**931877**	**50.00**	**722074**	**46.00**
2	40	**931879**	**50.00**	**722076**	**46.00**
5	50	**931883**	**48.00**	**722080**	**44.00**
10	50	**931886**	**48.00**	**722083**	**44.00**

VOLTMETERS

Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
1000 Ohms Per Volt					
4	40	**931922**	**52.00**	**722089**	**48.00**
10	50	**931926**	**52.00**	**722093**	**48.00**
150	30	**931936**	**54.00**	**722103**	**50.00**
300	30	**931939**	**58.00**	**722106**	**54.00**
2000 Ohms Per Volt					
1	50	**931917**	**54.00**	**722084**	**50.00**
1.5	30	**931918**	**54.00**	**722085**	**50.00**
2	40	**931919**	**54.00**	**722086**	**50.00**
3	30	**931921**	**54.00**	**722088**	**50.00**

Above voltmeters primarily designed for high sensitivity for use over normal range of room temperatures and are calibrated on a 60 cycle sine wave. Instruments for special purposes can be supplied for wide range of operating temperature or extended ranges of frequency where lower sensitivity is permissible. Write for details.

TYPE HX RADIO FREQUENCY

Thermocouple Type

MILLIAMMETERS—SELF-CONTAINED†

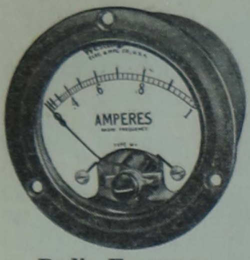
Cap.	Scale Divisions	Flush Mounting		Proj. Mounting	
		Cat. No.	Price Each	Cat. No.	Price Each
100	50	**931952**	**$53.00**	**722023**	**$49.00**
300	30	**931956**	**53.00**	**722027**	**49.00**
800	40	**931960**	**53.00**	**722031**	**49.00**
AMMETERS—SELF-CONTAINED†					
1	50	**931940**	**51.00**	**722033**	**47.00**
3	30	**931944**	**51.00**	**722037**	**47.00**
10	50	**931949**	**51.00**	**722042**	**47.00**
20	40	**931993**	**51.00**	**722044**	**47.00**
For Use with External Thermocouple					
Same as couple		**931951‡**	**45.00‡**	**722032‡**	**41.00‡**

†Restricted to low-voltage and audio-frequency use where capacity effects are not serious. For high d-c. or r-f. potentials above ground, instruments must be connected in ground lead. For high frequencies external thermocouples are recommended.

‡Includes 1-pair 8-foot leads, but not thermocouple—for longer leads than 8-foot, refer to us.

WESTINGHOUSE MINIATURE PANEL INSTRUMENTS

TYPE MA INSTRUMENTS



Radio Frequency Ammeter in Wide Flange Form

Available in a wide variety of forms for A.C. and D.C. industrial and radio use where a 2-inch round instrument with an accuracy of plus or minus 2 per cent is required. Entire line employs but two types of movements. When mounted on insulated panels, panel influence need not be considered, but when mounted on a steel panel, all miniature instruments must be so calibrated.

Data

A.C. Types*	Round Flush Mount. Narrow Flange	Round Flush Mount. Wide Flange
Case Material	Moldarta	Moldarta
Mounting	Flush Clamped	Flush Bolted
Body Diameter	2 1/16	2 1/16
Front Flange	2¼	2 9/16
D.C. Scale Length	1.8	1.8
A.C. Scale Length	1½	1½
Insulation Rating	500 V.	500 V.
Accuracy†	+ or − 2%	+ or − 2%

A.C. AMMETERS

Catalog Number Narrow Flange	Catalog Number Wide Flange	Rating	Scale Div.	F.S. Burden V-A. @ 60 Cy.	Price Each
Self-Contained					
937530	**W937530**	1	20	.1	**$7.50**
937531	**W937531**	2.5	25	.025	**7.50**
937532	**W937532**	5	25	.006	**7.50**
937533	**W937533**	10	20	.0025	**7.50**
937534	**W937534**	15	30	.0015	**7.50**
937535	**W937535**	25	25	.0006	**7.50**
937536	**W937536**	50	25	.0003	**7.50**

A.C. MILLIAMMETERS

Catalog Number Narrow Flange	Catalog Number Wide Flange	Rating	Scale Div.	F.S. Burden V-A. @ 60 Cy.	Ind. Hys.	Price Each
Self-Contained						
937537	**W937537**	5	25	.17	4.8	**$7.50**
937538	**W937538**	10	20	.17	1.2	**7.50**
937539	**W937539**	15	30	.15	.52	**7.50**
937540	**W937540**	25	25	.14	.187	**7.50**
937541	**W937541**	50	25	.14	.047	**7.50**
937542	**W937542**	100	20	.15	.012	**7.50**
937543	**W937543**	250	25	.17	.002	**7.50**
937544	**W937544**	500	25	.17	.0005	**7.50**

A.C. VOLTMETERS

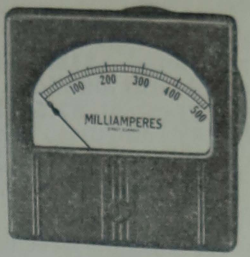
Catalog Number Narrow Flange	Catalog Number Wide Flange	Rating	Scale Div.	F.S. Burden V-A. @ 60 Cy.	Resist. Approx. Ohms	Price Each
Self-Contained						
937518	**W937518**	1.5	30	.75	3	**$7.50**
937519	**W937519**	2	20	1.00	4	**7.50**
937520	**W937520**	3	30	.75	12	**7.50**
937521	**W937521**	5	25	1.25	20	**7.50**
937522	**W937522**	7.5	37.5	.75	75	**7.50**
937523	**W937523**	10	20	1.00	100	**7.50**
937524	**W937524**	15	30	1.50	150	**7.50**
937525	**W937525**	25	25	1.25	500	**7.50**
937526	**W937526**	50	25	1.25	2000	**7.50**
937527	**W937527**	75	37.5	1.12	5000	**7.50**
937528	**W937528**	150	30	1.50	15000	**9.75**
937529	**W937529**	250	25	1.25	50000	**13.00**

*Repulsion vane (a.c.) types are air damped.

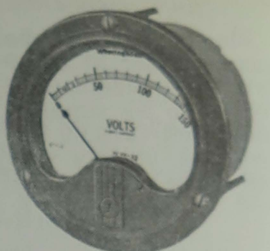
†Accuracy of Rectifier types 5 per cent. Repulsion vane types when use on d.c., 3 per cent.

WESTINGHOUSE MINIATURE PANEL INSTRUMENTS

TYPE 35 A-C. AND D-C.—3-INCH CLASS



D.C. Milliameter Rectangular



D.C. Voltmeter Round

Flush Mounting

Data

	Round Flush	Round Flush	Rect. Flush	Rect. Proj.
D-C. Types*	NX-35	VX-35	RX-35	UX-35
Rectifier Types	NC-35	VC-35	RC-35	UC-35
Radio Frequency Types	NT-35	VT-35	RT-35	UT-35
A-C. Types†	NA-35	VA-35	RA-35	UA-35
Case Material	Moldarta	Moldarta	Moldarta	Moldarta
Mounting	Flush Bolted	Flush Bolted	Flush Bolted	Projection Bolted
Body Diameter	2.8″	2¾″	2¾″	3″x3⅛″
Front Flange	3½″	3⅜″	3″x3⅛″	3″x3⅛″
D-C. Scale Length	2.4″	2.4″	2.4″	2.4″
A-C. Scale Length	2 1/16″	2 1/16″	2 1/16″	2 1/16″
Insulation Rating	750-V.	750-V.	750-V.	750-V.
Accuracy‡	+ or - 2%	+ or - 2%	+ or - 2%	+ or - 2%

Available in wide variety of ratings where 3-inch instruments with an accuracy of plus or minus 2% are required. Flush or projection mounting. Radio frequency and Rectifier. Round or rectangular. Some of the many uses are:

Industrial test units for testing of electrical apparatus.

Automotive analyzers for testing electrical characteristics of ignition, lighting and starting systems.

Battery testers and chargers.

Radio tube testers and analyzers.

Radio transmitters for indicating plate and filament currents and voltages, output, distortion factor modulation, and grid current.

Arc welding outfits.

Motion picture lamp control panels.

Sound movie equipment for measuring circuit characteristics.

Catalog number and price include instruments calibrated for use on non-magnetic panels. When ordering for use on steel panels, panel thickness must be specified.

*Permanent magnet moving coil (d-c.) types have electromagnetic damping.

†Repulsion vane (a-c.) types are air damped.

‡Accuracy of Rectified types 5%. Repulsion vane types when used on d-c. 3%.

D.C. AMMETERS

Types NX-35, VX-35, RX-35, UX-35 Calibrated for 50 M.V. External Shunts

Rating	Div. Scale	Max. Resist. Lead	NX-35 Catalog Number	VX-35 Catalog Number	RX-35 Catalog Number	UX-35 Catalog Number	Each Price
50 MV*	†	0.19	**1159148**	**1159205**	**1159167**	**1159186**	**$9.00**
50 MV	†	0.96	**1160751**	**1160760**	**1160754**	**1160757**	**12.00**
50 MV	†	2.00	**1160752**	**1160761**	**1160755**	**1160758**	**15.00**
50 MV	†	14.60	**1160753**	**1160762**	**1160756**	**1160759**	**18.00**

*Supplied with 8-ft. leads. Other lead lengths must be negotiated. If we are not to supply leads specify total lead resistance on order.

†For left zero. Center zero instruments are furnished at same price. Instrument may be calibrated for shunts from 5 to 20,000 amps.

WESTINGHOUSE MINIATURE PANEL INSTRUMENTS

TYPE 35 A-C. AND D-C.—3-INCH CLASS

D.C. AMMETERS

Type NX-35, VX-35, RX-35, UX-35

Self-Contained

Rating	Scale Div.	Max. Lead Resist.	Catalog Number NX-35	Catalog Number VX-35	Catalog Number RX-35	Catalog Number UX-35	Price Each
1	50	....	1159150	1159207	1159169	1159188	$9.00
1.5	75	....	1159151	1159208	1159170	1159189	9.00
2	40	....	1159152	1159209	1159171	1159190	9.00
2.5	50	....	1159153	1159210	1159172	1159191	9.00
3	60	....	1159154	1159211	1159173	1159192	9.00
4	40	....	1159155	1159212	1159174	1159193	9.00
5	50	....	1159156	1159213	1159175	1159194	9.00
6	60	....	1159157	1159214	1159176	1159195	9.00
8	40	....	1159158	1159215	1159177	1159196	9.00
10	50	....	1159159	1159216	1159178	1159197	9.00
15	75	....	1159160	1159217	1159179	1159198	9.00
20	40	....	1159161	1159218	1159180	1159199	9.00
25	50	....	1159162	1159219	1159181	1159200	9.00
30	60	....	1159163	1159220	1159182	1159201	9.00
40	40	....	1159164	1159221	1159183	1159202	9.00
50	50	....	1159165	1159222	1159184	1159203	9.00
60	60	....	1159166	1159223	1159185	1159204	9.00

Instruments in this group are shunted internally and have a drop of 50 milli-volts ± 10%.

D.C. MILLIAMMETERS

Self-Contained

1	50	57.2	1159676	1159709	1159687	1159698	$10.00
1.5	75	38.6	1159677	1159710	1159688	1159699	10.00
2	40	15.1	1159678	1159711	1159689	1159700	10.00
2.5	50	12.5	1159679	1159712	1159690	1159701	10.00
3	60	10.4	1159680	1159713	1159691	1159702	10.00
4	40	8.3	1159681	1159714	1159692	1159703	10.00
5	50	3.7	1159682	1159715	1159693	1159704	9.00
6	60	2.4	1159683	1159716	1159694	1159705	9.00
8	40	3.9	1159684	1159717	1159695	1159706	9.00
10	50	2.1	1159685	1159718	1159696	1159707	9.00
15	75	1.5	1159686	1159719	1159697	1159708	9.00
20	40	....	1159720	1159768	1159736	1159752	9.00
25	50	....	1159721	1159769	1159737	1159753	9.00
30	60	....	1159722	1159770	1159738	1159754	9.00
40	40	....	1159723	1159771	1159739	1159755	9.00
50	50	....	1159724	1159772	1159740	1159756	9.00
60	60	....	1159725	1159773	1159741	1159757	9.00
80	40	....	1159726	1159774	1159742	1159758	9.00
100	50	....	1159727	1159775	1159743	1159759	9.00
150	75	....	1159728	1159776	1159744	1159760	9.00
200	40	....	1159729	1159777	1159745	1159761	9.00
250	50	....	1159730	1159778	1159746	1159762	9.00
300	60	....	1159731	1159779	1159747	1159763	9.00
400	40	....	1159732	1159780	1159748	1159764	9.00
500	50	....	1159733	1159781	1159749	1159765	9.00
600	60	....	1159734	1159782	1159750	1159766	9.00
800	40	....	1159735	1159783	1159751	1159767	9.00

Milli-ammeters of ratings of 20 and above are shunted internally and have a drop of 50 M.V. ± 10%. Center zero milli-ammeters are furnished at same prices.

D.C. MILLIAMMETERS

Double Ranges, 3 Terminal, Self-Contained

0-15-150	75	....	1159668	1159674	1159670	1159672	$14.00
0-30-150	75	....	1159669	1159675	1159671	1159673	14.00

Other ratings may be furnished on special order.

D.C. MICROAMMETERS‡

Self-Contained

20	40	2180	1159492	1159516	1159500	1159508	$26.00
25	50	2180	1159493	1159517	1159501	1159509	26.00
30	60	1810	1159494	1159518	1159502	1159510	26.00
40	40	885	1159495	1159519	1159503	1159511	23.50
50	50	426	1159496	1159520	1159504	1159512	23.50
60	60	341	1159497	1159521	1159505	1159513	23.50
80	40	183	1159498	1159522	1159506	1159514	23.50
100	50	71	1159499	1159523	1159507	1159515	21.00
150	75	340	1159524	1159548	1159532	1159540	18.00
200	40	154	1159525	1159549	1159533	1159541	14.25
250	50	121	1159526	1159550	1159534	1159542	14.25
300	60	154	1159527	1159551	1159535	1159543	14.25
400	40	97	1159528	1159552	1159536	1159544	14.25
500	50	110	1159529	1159553	1159537	1159545	14.25
600	60	93	1159530	1159554	1159538	1159546	14.25
800	40	61	1159531	1159555	1159539	1159547	14.25

‡Microammeters below 500 microamperes depend upon the external circuit for damping. Ratings of 100 and lower have high coercive magnets.

WESTINGHOUSE MINIATURE PANEL INSTRUMENTS

D.C. VOLTMETERS

Self-Contained

Resistance 200 Ohms Per Volt Single Range

Rating	Scale Div.	Approx. Resist.	Catalog Number NX-35	Catalog Number VX-35	Catalog Number RX-35	Catalog Number UX-35	Price Each
1	50	....	1159224	1159287	1159245	1159266	$9.00
1.5	75	....	1159225	1159288	1159246	1159267	9.00
2	40	....	1159226	1159289	1159247	1159268	9.00
2.5	50	....	1159227	1159290	1159248	1159269	9.00
3	60	....	1159228	1159291	1159249	1159270	9.00
4	40	....	1159229	1159292	1159250	1159271	9.00
5	50	....	1159230	1159293	1159251	1159272	9.00
6	60	....	1159231	1159294	1159252	1159273	9.00
8	40	....	1159232	1159295	1159253	1159274	9.00
10	50	....	1159233	1159296	1159254	1159275	9.00
15	75	....	1159234	1159297	1159255	1159276	9.00
20	40	....	1159235	1159298	1159256	1159277	9.00
25	50	....	1159236	1159299	1159257	1159278	9.00
30	60	....	1159237	1159300	1159258	1159279	9.00
40	40	....	1159238	1159301	1159259	1159280	9.00
50	50	....	1159239	1159302	1159260	1159281	9.00
60	60	....	1159240	1159303	1159261	1159282	9.00
80	40	....	1159241	1159304	1159262	1159283	9.00
100	50	....	1159242	1159305	1159263	1159284	10.00
150	75	....	1159243	1159306	1159264	1159285	11.25
200	40	....	1159244	1159307	1159265	1159286	13.00
Resistance 1000 ohms per Volt Single Range							
1	50	....	1159360	1159423	1159381	1159402	$12.00
1.5	75	....	1159361	1159424	1159382	1159403	12.00
2	40	....	1159362	1159425	1159383	1159404	12.00
2.5	50	....	1159363	1159426	1159384	1159405	12.00
3	60	....	1159364	1159427	1159385	1159406	12.00
4	40	....	1159365	1159428	1159386	1159407	12.00
5	50	....	1159366	1159429	1159387	1159408	12.00
6	60	....	1159367	1159430	1159388	1159409	12.00
8	40	....	1159368	1159431	1159389	1159410	12.00
10	50	....	1159369	1159432	1159390	1159411	12.00
15	75	....	1159370	1159433	1159391	1159412	12.00
20	40	....	1159371	1159434	1159392	1159413	12.00
25	50	....	1159372	1159435	1159393	1159414	12.00
30	60	....	1159373	1159436	1159394	1159415	12.00
40	40	....	1159374	1159437	1159395	1159416	12.00
50	50	....	1159375	1159438	1159396	1159417	12.00
60	60	....	1159376	1159439	1159397	1159418	12.00
80	40	....	1159377	1159440	1159398	1159419	12.00
100	50	....	1159378	1159441	1159399	1159420	12.50
150	75	....	1159379	1159442	1159400	1159421	13.25
200	40	....	1159380	1159443	1159401	1159422	14.00
250	50	....	1159444	1159480	1159456	1159468	14.50
300	60	....	1159445	1159481	1159457	1159469	15.00
400	40	....	1159446	1159482	1159458	1159470	16.25
500	50	....	1159447	1159483	1159459	1159471	17.25
600	60	....	1159448	1159484	1159460	1159472	18.50
750	40	....	1159449	1159485	1159461	1159473	21.00
1000	50	....	1159450	1159486	1159462	1159474	24.50

External Tubular Resistor*

Resistance 1000 ohms per Volt Single Range

1500*	75	....	1159451	1159487	1159463	1159475	$36.50
2000*	40	....	1159452	1159488	1159464	1159476	40.00
2500*	50	....	1159453	1159489	1159465	1159477	46.50
3000*	60	....	1159454	1159490	1159466	1159478	50.00
5000*	50	....	1159455	1159491	1159467	1159479	70.00

*Voltmeters have 1 milliampere movement and are supplied with Westinghouse self-contained, wire wound, hermetically sealed, external tubular resistors. These resistors are statically shielded.

Double Range, Three Terminal, Self-Contained

Resistance 1000 Ohms Per Volt

0-8-200	40	....	1159784	1159793	1159787	1159790	$15.00
0-30-150	75	....	1159785	1159794	1159788	1159791	15.00
0-50-250	50	....	1159786	1159795	1159789	1159792	15.00

Four Range, Two Terminal

Resistance 1000 Ohms Per Volt

0-5-25-100-500†	50	....	1159796	1159802	1159798	1159800	19.25
0-10-50-250-1000†	50	....	1159797	1159803	1159799	1159801	25.00

†Supplied with external resistor for 3 highest ranges. Instrument is self-contained for lowest range.

D.C. MILLIVOLTMETERS

Self-Contained

5‡*	50	15.0	1159568	1159577	1159571	1159574	$23.50
6‡*	60	14.0	1159569	1159578	1159572	1159575	23.50
8‡*	40	13.0	1159570	1159579	1159573	1159576	23.50
10‡	50	3.7	1159580	1159607	1159589	1159598	9.00
15‡	75	5.5	1159581	1159608	1159590	1159599	9.00
20‡	40	6.0	1159582	1159609	1159591	1159600	9.00
25‡	50	4.6	1159583	1159610	1159592	1159601	9.00
30‡	60	5.5	1159584	1159611	1159593	1159602	9.00
40‡	40	5.6	1159585	1159612	1159594	1159603	9.00
50	50	3.4	1159586	1159613	1159595	1159604	9.00
100	50	6.9	1159587	1159614	1159596	1159605	9.00
500	50	34.5	1159588	1159615	1159597	1159606	9.00

‡Ratings of 8 millivolts and below have high coercive magnets.

*Damped by external circuit only.

WESTINGHOUSE MINIATURE PANEL INSTRUMENTS

TYPE 35 A.C. AND D.C.—3-INCH CLASS D.C. VOLT-OHMMETERS

Three Terminal

Volts	Ohms	Cat. No. NX-35	Cat. No. VX-35	Cat. No. RX-35	Cat. No. UX-35	Price Each
1.5	0–1000	1159804	1159825	1159811	1159818	$10.50
1.5	0–3000	1159805	1159826	1159812	1159819	10.50
4.5	0–10,000	1159806	1159827	1159813	1159820	10.50
4.5	0–30,000	1159807	1159828	1159814	1159821	11.50
4.5	0–100,000	1159808	1159829	1159815	1159822	13.50
15	0–500,000	1159809	1159830	1159816	1159823	13.50
90	0–2 Meg.	1159810	1159831	1159817	1159824	15.00

Ohmmeters require an external D.C. source for operation. The voltage should be equal to the voltage rating of the particular instrument.

PORTABLE HOUSING*

For Types NX-35, NC-35, NT-35 and NA-35 Instruments

Maximum Current Limitation — 30 Amperes†

Cat. No.	Description	Price Each
837456	2 Terminals	**$2.00**
837457	3 Terminals	**2.50**
837458	4 Terminals	**2.75**

*This is a compact mounting fixture with mounts one Type NX-35, NC-35, NT-35 or NA-35 instrument. It adapts the instrument to use on work bench, table, or desk as a utility portable.

†For currents above 30 to 50 ampere, add **$1.50** list for 2 terminal; **$2.00** list for 3 terminal, and **$2.25** for 4 terminal.

RECTIFIER INSTRUMENTS

TYPES NC-35, VC-35, RC-35, UC-35

Milliammeters—Self-Contained

Rtg.	Scale Div.	Cat. No. NC-35	Cat. No. VC-35	Cat. No. RC-35	Cat. No. UC-35	Price Each
1	50	1159880	1159895	1159885	1159890	$15.00
2	40	1159881	1159896	1159886	1159891	15.00
5	50	1159882	1159897	1159887	1159892	14.00
10	50	1159883	1159898	1159888	1159893	14.00
15	75	1159884	1159899	1159889	1159894	14.00
Microammeters—Self-Contained						
80‡	40	1159868	1159877	1159871	1159874	$30.00
100	50	1160771	1160777	1160773	1160775	21.00
200	40	1159869	1159878	1159872	1159875	19.25
250	50	1160772	1160778	1160774	1160776	19.25
500	50	1159870	1159879	1159873	1159876	19.25

‡This range has expanded lower scale and is particularly suited for use as an A.C. Galvanometer.

Voltmeters¶—Single Range, Self-Contained

Resistance 1000 Ohms Per Volt

4¶	40	1159900	1159924	1159908	1159916	$17.00
5	50	1159901	1159925	1159909	1159917	17.00
10	50	1159902	1159926	1159910	1159918	17.00
15	75	1159903	1159927	1159911	1159919	17.00
50	50	1159904	1159928	1159912	1159920	17.00
100	50	1159905	1159929	1159913	1159921	17.50
150	75	1159906	1159930	1159914	1159922	19.00
300	60	1159907	1159931	1159915	1159923	20.00
Multi-Range, Two Terminal						
5-10-200-1000■¶	50	1159560	1159563	1159561	1159562	$30.00

■External resistor is used, low range self-contained.

¶Below 4 volts rectifier voltmeters have a resistance of 2000 to 5000 ohms per volt.

Voltmeters—Self-Contained

Resistance 2000 Ohms Per Volt

1.5	75	1159932	1159965	1159943	1159954	$19.25
2	40	1159933	1159966	1159944	1159955	19.25
2.5	50	1159934	1159967	1159945	1159956	19.25
3	60	1159935	1159968	1159946	1159957	19.25
5	50	1159936	1159969	1159947	1159958	19.25
10	50	1159937	1159970	1159948	1159959	19.25
15	75	1159938	1159971	1159949	1159960	19.25
50	50	1159939	1159972	1159950	1159961	19.75
100	50	1159940	1159973	1159951	1159962	21.50
150	75	1159941	1159974	1159952	1159963	21.50
300	60	1159942	1159975	1159953	1159964	23.00
Resistance 5000 Ohms Per Volt						
0.5	50	1159976	1159982	1159978	1159980	$19.25
1	50	1159977	1159983	1159979	1159981	19.25

WESTINGHOUSE MINIATURE PANEL INSTRUMENTS

RADIO FREQUENCY INSTRUMENTS

Types NT-35, VT-35, RT-35, UT-35

RADIO FREQUENCY AMMETERS*

Self-Contained

Rtg.	Cat. No. NT-35	Cat. No. VT-35	Cat. No. RT-35	Cat. No. UT-35	Price Each
1	1159620	1159656	1159632	1159644	$16.00
1.5	1159621	1159657	1159633	1159645	16.00
2	1159622	1159658	1159634	1159646	16.00
2.5	1159623	1159659	1159635	1159647	16.00
3	1159624	1159660	1159636	1159648	16.00
4	1159625	1159661	1159637	1159649	16.00
5	1159626	1159662	1159638	1159650	16.00
6	1159627	1159663	1159639	1159651	16.00
8	1159628	1159664	1159640	1159652	16.00
10	1159629	1159665	1159641	1159653	16.00
15	1159630	1159666	1159642	1159654	16.00
20	1159631	1159667	1159643	1159655	16.00

RADIO FREQUENCY MILLIAMMETERS*

Self-Contained

100	1159832	1159859	1159841	1159850	$18.00
150	1159833	1159860	1159842	1159851	18.00
200	1159834	1159861	1159843	1159852	18.00
250	1159835	1159862	1159844	1159853	18.00
300	1159836	1159863	1159845	1159854	18.00
400	1159837	1159864	1159846	1159855	18.00
500	1159838	1159865	1159847	1159856	18.00
600	1159839	1159866	1159848	1159857	16.00
800	1159840	1159867	1159849	1159858	16.00

*Standard radio frequency instruments are suitable for frequencies up to and including six megacycles.

RADIO FREQUENCY AMMETER

Calibrated for Use with External Thermocouple

Range	Cat. No. NT-35	Cat. No. VT-35	Cat. No. RT-35	Cat. No. UT-35	Price Each
*To Suit Thermocouple	1159616	1159619	1159617	1159618	$10.00

*List price includes the ammeter calibrated with four foot leads, but not the thermocouple. Radio-frequency ammeters are available with external thermocouples in all ranges from 1 to 50 amperes, inclusive. When long leads are used between the instrument and the thermocouple, it is usually necessary to place proper by-pass condensers and radio-frequency chokes in the circuit at the thermocouple to prevent damage to the thermocouple by radio-frequency in the instrument leads. Additional information on this subject will be furnished on request.

EXTERNAL THERMOCOUPLES

For Radio-Frequency Ammeters — Air Type

Rtg.	Cat. No.	Price Each	Rtg.	Cat. No.	Price Each
1	878638	$12.00	10	878647	12.00
1.5	878639	12.00	15	878648	12.00
2	878640	12.00	20	878649	12.00
2.5	878641	12.00	25	878650	12.00
3	878642	12.00	30	878651	14.50
4	878643	12.00	35	878652	14.50
5	878644	12.00	40	878653	14.50
6	878645	12.00	50	878654	14.50
8	878646	12.00	....	....	....

External thermocouples may be used with radio-frequency ammeters designed for the purpose and listed with the various types of instruments. Each instrument and thermocouple must be calibrated together.

WESTINGHOUSE MINIATURE PANEL INSTRUMENTS

ALTERNATING CURRENT INSTRUMENTS

Types NA-35, VA-35, RA-35, UA-35

A.C. AMMETERS*

Self-Contained

For Frequencies of 15 to 500 Cycles

Rtg.	Scale Div.	F.S. Burden V.A. @ 60 Cy.	Cat. No. NA-35	Cat. No. VA-35	Cat. No. RA-35	Cat. No. UA-35	Price Each
1	50	.17	1159112	1159139	1159121	1159130	$ 9.00
2.5	50	.25	1159113	1159140	1159122	1159131	9.00
5	50	.25	1159114	1159141	1159123	1159132	9.00
10	50	.50	1159115	1159142	1159124	1159133	9.00
15	75	.50	1159116	1159143	1159125	1159134	9.00
25	50	.65	1159117	1159144	1159126	1159135	9.00
50	50	.75	1159118	1159145	1159127	1159136	9.00

*Follow up pointer for measuring starting current, **$5.00** list additional.

A.C. AMMETERS†

Calibrated for Use with Current Transformers

For Frequencies of 15 to 500 Cycles

5 Amp.	Uncal.	0.25	1160779	1160782	1160780	1160781	$ 9.00

†Follow up pointer for measuring starting current, **$5.00** list additional.

A.C. MILLIAMMETERS‡

Self-Contained

For Frequencies of 15 to 500 Cycles

5	50	.17	1159080	1159104	1159088	1159096	$10.00
10	50	.17	1159081	1159105	1159089	1159097	9.00
15	75	.15	1159082	1159106	1159090	1159098	9.00
25	50	.14	1159083	1159107	1159091	1159099	9.00
50	50	.14	1159084	1159108	1159092	1159100	9.00
100	50	.15	1159085	1159109	1159093	1159101	9.00
250	50	.17	1159086	1159110	1159094	1159102	9.00
500	50	.17	1159087	1159111	1159095	1159103	9.00

‡Follow up pointer for measuring starting current **$5.00** list additional.

A.C. VOLTMETERS

Single Range

For Frequencies of 25 to 200 Cycles¶

1.5	75	.75	1159000	1159051	1159017	1159034	$ 9.00
2	40	1.00	1159001	1159052	1159018	1159035	9.00
3	60	.75	1159002	1159053	1159019	1159036	9.00
5	50	1.25	1159003	1159054	1159020	1159037	9.00
7.5	75	0.75	1159004	1159055	1159021	1159038	9.00
10	50	1.00	1159005	1159056	1159022	1159039	9.00
15	75	1.50	1159006	1159057	1159023	1159040	9.00
25	50	1.25	1159007	1159058	1159024	1159041	9.00
50	50	1.25	1159008	1159059	1159025	1159042	9.00
75	75	1.12	1159009	1159060	1159026	1159043	9.00
150	75	1.50	1159010	1159061	1159027	1159044	11.25
250	50	1.25	1159011	1159062	1159028	1159045	14.50
350	70	1.75	1159012	1159063	1159029	1159046	17.50
500	50	2.50	1159013	1159064	1159030	1159047	19.50
600*	60	3.00	1159014	1159065	1159031	1159048	21.50
750*	75	3.75	1159015	1159066	1159032	1159049	23.50
1000*	50	5.00	1159016	1159067	1159033	1159050	28.00

¶Voltmeters for use on frequencies of 200–600 cycles can be furnished at same prices.

*Self-contained up to and including 500 volts. Higher ratings have external resistors.

A.C. VOLTMETERS

Self-Contained — Four Terminal

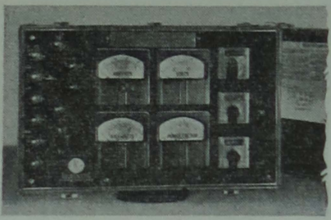
Triple Range

0–4–8–150	40–75	....	1159068	1159077	1159071	1159074	$15.50
0–3–15–150	60–75	....	1159069	1159078	1159072	1159075	15.50
0–4–8–300	40–60	....	1159070	1159079	1159073	1159076	17.50

WESTINGHOUSE INSTRUMENTS

TYPE TA INDUSTRIAL ANALYZER

A Complete Portable Set for A.C. Power



This instrument finds innumerable applications among service men, trouble shooters, plant maintenance, layout, and efficiency men, electrical dealers, and in fact, anyone having occasion to do any a.c. testing, checking, or installation work.

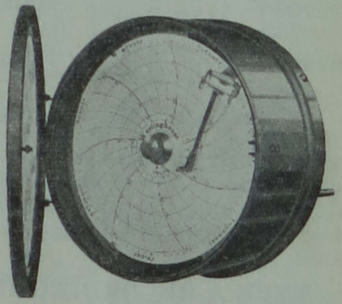
A few of the many uses: Testing 3-phase induction motors up to 25 h.p., 115 volts; 50 h.p., 230 volts; and 100 h.p., 600 volts. Trouble shooting, checking and testing of all kinds of alternating circuits up to 125 amperes, 600 volts. Plant layout, analysis and efficiency tests.

The Analyzer is a miniature portable 3-phase switchboard panel in a carrying case complete with all necessary switching equipment, transformers, and resistors. The unit contains a triple scale ammeter 0-5, 0-25, and 0-125 amperes, a triple range voltmeter 0-150, 0-300, and 0-600 volts, a polyphase wattmeter with 3 scales for the above voltage and current ranges, and a polyphase power-factor meter with 10-100-80 scale to operate on above voltages and currents.

Price, No. **836800** Industrial Analyzer....	**$400.00**
Price, No. **876141** Transformer for 2-phase, 4-wire, primary 115-230-575 volts, secondary 115 volts (1 required)	**40.00**

TYPE A RECORDING INSTRUMENTS

Moving Iron Type — Magnetic Damping



Type A Recording

These instruments are intended for use where a circular chart graphic record is desired. The instrument is simple, rugged and comparatively low in price. Calibration is accurate and exceptionally permanent. Ammeter operates either on a-c. or d-c. with negligible difference in readings. Voltmeter must be calibrated for frequency of circuit on which used. When used on d-c. circuits, voltmeters must be calibrated accordingly. Ten and fifteen-ampere ranges can be supplied in ammeters. Higher ranges on request. Also available in detachable socket mounting arrangements.

Ammeters — Switchboard Mounting

Cat. No. A-C. 60 Cy.	Range	Clock	Chart Days	Price Each
		Rear Connected		
682862	0–5	Syn. Motor	7	**$68.00**
682863	0–5	Syn. Motor	1	**68.00**
682864	0–5	Hand Wound	7	**68.00**
682865	0–5	Hand Wound	1	**68.00**
		Front Connected		
682866	0–5	Syn. Motor	1	**68.00**
682867	0–5	Syn. Motor	7	**68.00**
682868	0–5	Hand Wound	1	**68.00**
682869	0–5	Hand Wound	7	**68.00**

Ammeters of 0–2½ or 0–10 ampere capacity are supplied at above prices. Ammeters of 0–20 ampere capacity using 0–10 charts with multiplier of 2, supplied at **$5.00** additional list price.

WESTINGHOUSE INSTRUMENTS

TYPE A RECORDING INSTRUMENTS

Moving Iron Type — Magnetic Damping

Voltmeters — Switchboard Mounting

Rear Connected

Cat. No. A-C. 60 Cy.	Range	Clock	Chart Days	Price Each
682870	90–140*	Syn Motor	1	$74.00
682871	90–140*	Syn. Motor	7	74.00
682190	90–140*	Hand Wound	1	74.00
682191	90–140*	Hand Wound	7	74.00
936485	180–280*	Syn. Motor	1	79.00
936486	180–280*	Syn. Motor	7	79.00
936487	180–280*	Hand Wound	1	79.00
836488	180–280*	Hand Wound	7	79.00

Front Connected

Cat. No. A-C. 60 Cy.	Range	Clock	Chart Days	Price Each
682192	90–140*	Syn. Motor	1	74.00
682193	90–140*	Syn. Motor	7	74.00
682194	90–140*	Hand Wound	1	74.00
682195	90–140*	Hand Wound	7	74.00
936489	180–280*	Syn. Motor	1	79.00
936490	180–280*	Syn. Motor	7	79.00
724840	180–280*	Hand Wound	1	79.00
936491	180–280*	Hand Wound	7	79.00

Ammeters — Portable

Cat. No. A-C. 60 Cy.	Range	Clock	Chart Days	Price Each
682196	0–5	Hand Wound	1	74.00
682197	0–5	Hand Wound	7	74.00

Portable ammeters of 0–2½ or 0–10 ampere capacity are supplied at above prices. Portable ammeters of 0–20 ampere capacity using 0–10 charts with multiplier of 2, supplied at **$5.00** additional list price.

Voltmeters — Portable

Cat. No. A-C. 60 Cy.	Range	Clock	Chart Days	Price Each
682203	90–140*	Hand Wound	1	$79.00
682204	90–140*	Hand Wound	7	79.00
879991	90–140* 180–280*	Hand Wound	1	89.00
879992	90–140* 180–280*	Hand Wound	7	89.00

*Furnished with external series resistor.

Portable recorders may be supplied with synchronous motor clocks at **$10.00** additional list for double range voltmeters and **$5.00** additional list for single range voltmeters and ammeters.

TYPE A RECORDING INSTRUMENT PAPER

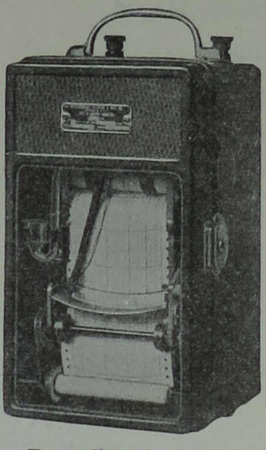
AMMETER			VOLTMETER			
Cat. No.	Scale	Chart Days	Cat. No.	Scale	Chart Days	Price Per 100
797900	0–5	7	718397	90–140	7	$1.70
704000	0–5	1	718396	90–140	1	1.70
797901	0–2½	7	936499	180–280	7	1.70
936497	0–2½	1	724836	180–280	1	1.70
718530	0–100	7	....	....	--	1.70
718531	0–40	7	....	....	--	1.70
722592	0–10	7	....	....	--	1.70
936498	0–10	1	....	....	--	1.70

SUPPLIES

Cat. No.	Description	Price Each
723205	2-Ounce Bottle Blue Ink	$ 0.35
1009095	16-Ounce Bottle Blue Ink	2.50
718846	Pen and Pen Arm	2.50
717045	Hand Wound Clock, 7 Day	20.00
717046	Hand Wound Clock, 1 Day	20.00
722163	Syn. Motor Clock, 7 Day, 115 Volt, 60 Cycles	22.00
722162	Syn. Motor Clock, 1 Day, 115 Volt, 60 Cycles	22.00
935894	Key for Hand Wound Clock	0.65

WESTINGHOUSE INSTRUMENTS

TYPE U RECORDING INSTRUMENTS



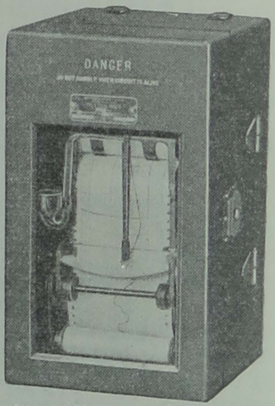
Recording Ammeter

Intended for purposes where recording instruments that are easily operated, light in weight, comparatively low in price, and reasonably accurate, are required.

The instrument consists of a solenoid and core acting on an arm that carries the recording pen, and a continuous strip of paper moved uniformly by a clock mechanism. To overcome the slight friction of the pen on the paper, the solenoid is made powerful in its action. Its action is controlled by a heavy spring, which minimizes inaccuracies due to slight errors in leveling. The energy consumed by the voltmeter, including its external resistor, is 30 watts. The energy consumed by the ammeter is 7 watts, thus adapting it for use with ordinary current transformer for currents higher than the current rating of the instrument.

This instrument is constructed with a dashpot which damps the action of the instrument on fluctuating current or voltage. On circuits not subject to excessive fluctuations the oil can be left out of the dashpot.

The instrument is contained in a metal case having a glass window for observing the movement of the pen. The standard instrument is adapted for either switchboard mountings or portable use. The hinged handle makes it convenient to carry the instrument about and the lug can be used for hanging the instrument on the wall for temporary testing or while being stored in the instrument room. The lugs and handle are detachable and are removed when the instrument is mounted on a switchboard.



High-Voltage Ammeter

Standard type U recording instruments are insulated for a maximum of 750 volts.

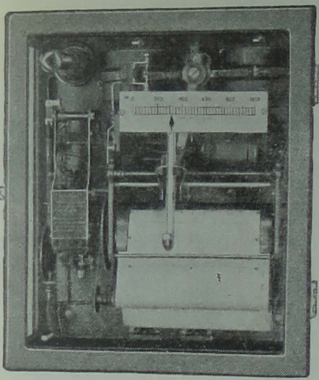
Voltmeters have suppressed-zero scales to obtain large division in the part of the scale used. An external resistor is furnished with each.

Ammeters are made up to and including 80 amperes. Direct-current ammeters for higher currents cannot be furnished, but alternating-currents of any magnitude can be measured by means of the 5-ampere ammeter with a current transformer.

Three-wire ammeters record the total current in both outside wires of a 3-wire system. They are useful in obtaining a record of the total load on a 3-wire installation, but are recommended for use on direct-current circuits only. For 3-wire a-c. circuits the 5-ampere 2-wire instrument with a 3-wire current transformer is preferable.

WESTINGHOUSE INSTRUMENTS

TYPE R RECORDING VOLTMETERS*



A.C. or D.C.

High Accuracy and Sensitivity. Correct at any commercial frequency. For higher voltages than those listed, the 90-140 volt range should be selected and operated from a voltage transformer. Voltmeters may be calibrated with chart starting from zero if desired, using any standard ammeter paper listed.

Panel Mounting Types — Rear Connected

Cat. No.	Cap. Inst.† Cir. Volts	Control Circuit Volts	Control Circuit Cycles	Price Each
		Self Winding		
374802	90–140	110	D-C.	**$290.00**
374805	90–140	250	D-C.	**300.00**
374803	90–140	110	25	**290.00**
374804	90–140	110	60	**290.00**
		Synchronous		
437972	90–140	110	60	**320.00**
		Self Winding		
374806	180–280	110	D-C.	**300.00**
374809	180–280	250	D-C.	**300.00**
374807	180–280	110	25	**300.00**
374808	180–280	110	60	**300.00**
		Synchronous		
437974	180–280	110	60	**325.00**
		Self Winding		
374810	250–450	110	D-C.	**300.00**
374813	250–450	250	D-C.	**310.00**
374811	250–450	110	25	**300.00**
374812	250–450	110	60	**300.00**
		Synchronous		
437976	250–450	110	60	**325.00**
		Self Winding		
374814	360–560	110	D-C.	**310.00**
374817	360–560	250	D-C.	**320.00**
374815	360–560	110	25	**310.00**
374816	360–560	110	60	**310.00**
		Synchronous		
437978	360–560	110	60	**340.00**
		Self Winding		
374818	450–700	110	D-C.	**320.00**
374821	450–700	250	D-C.	**320.00**
374819	450–700	110	25	**320.00**
374820	450–700	110	60	**320.00**
		Synchronous		
437980	450–700	110	60	**340.00**

*Orders should specify full scale rating desired according to chart selected, and voltage transformer ratio.

†Special non-suppressed voltmeters may be supplied on order using any standard ammeter paper listed. This paper is marked "recording meter" and is suitable for use in voltmeters as well as ammeters.

WESTINGHOUSE INSTRUMENTS

TYPE R RECORDING WATTMETERS

Single and Polyphase

Orders should specify the full scale rating desired, according to paper capacity selected, and the ratio of current and voltage transformers.

Single-Phase Wattmeters*

Cat. No.	Capacity Amp.‡	Inst. Circuit Volts†	Control Circuit Volts	Control Circuit Cycles	Price Each
			Self Winding		
374822	5	100	110	D-C.	**$230.00**
374825	5	100	250	D-C.	**235.00**
374823	5	100	110	25	**230.00**
374824	5	100	110	60	**230.00**
			Synchronous		
437982	5	100	110	60	**260.00**
			Self Winding		
374826	5	200	110	D-C.	**240.00**
374829	5	200	250	D-C.	**245.00**
374827	5	200	110	25	**240.00**
374828	5	200	110	60	**240.00**
			Synchronous		
437984	5	200	110	60	**270.00**
			Self Winding		
374830	5	400	110	D-C.	**245.00**
374833	5	400	250	D-C.	**250.00**
374831	5	400	110	25	**245.00**
374832	5	400	110	60	**245.00**
			Synchronous		
437986	5	400	110	60	**270.00**

Polyphase Wattmeters¶

Cat. No.	Capacity Amp.‡*	Inst. Circuit Volts†	Control Circuit Volts	Control Circuit Cycles	Price Each
		2 Potential Coils — 2 Current Coils■			
		3-Phase 3-Wire, 2-Phase 3-Wire, 2-Phase 4-Wire			
			Self Winding		
374834	5	100	110	D-C.	**230.00**
374837	5	100	250	D-C.	**235.00**
374835	5	100	110	25	**230.00**
374836	5	100	110	60	**230.00**
			Synchronous		
437988	5	100	110	60	**260.00**
			Self Winding		
374838	5	200	110	D-C.	**240.00**
374841	5	200	250	D-C.	**245.00**
374839	5	200	110	25	**240.00**
374840	5	200	110	60	**240.00**
			Synchronous		
437990	5	200	110	60	**270.00**
			Self Winding		
374842	5	400	110	D-C.	**245.00**
374845	5	400	250	D-C.	**250.00**
374843	5	400	110	25	**245.00**
374844	5	400	110	60	**245.00**
			Synchronous		
437992	5	400	110	60	**270.00**

*Orders should specify full scale rating desired according to chart selected, and voltage and current transformer ratios where used, and type of circuit. The full scale current rating may be modified from 4 to 6 amperes to suit capacities required.

†Order potential transformers with 115-volt secondaries.

‡Order station type current transformers.

¶Orders should specify full scale rating desired according to chart selected, and voltage and current transformer ratios and connections where used, and type of circuit.

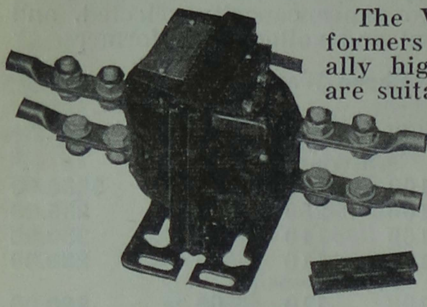
*The full scale current rating may be modified from 4 to 6 amperes to suit capacities required.

■Any of these recorders may be supplied with 3 current coils for use on 3 phase 4 wire circuits at **$20.00** additional list price.

WESTINGHOUSE CURRENT TRANSFORMERS

TYPE W INDOOR CURRENT TRANSFORMERS

Dry-Type for 1000, 5000, 7500, 15000 and 23000 Volts



Type W-1, 3-Wire, Dry-Type

The W current transformers have exceptionally high accuracy, and are suitable for metering applications on lines up to and including 23,000 volts. The insulation strength for each voltage class is definitely rated in terms of equivalent rod gaps.

The W-1, 2-wire is designed for meter applications with the burden of a watthour meter only. It will carry two watthour meters' burden with very little change in performance.

The W-1, 3-wire, is especially suited for use with watthour meters on 3-wire distribution systems of not more than 1000 volts.

25 and 60 Cycles Circuits

Type W-1, 3-Wire—1000 Volts—Test Gap 0.8″

Cat. No.	Primary Rating* Amps.	Price Each	Cat. No.	Primary Rating* Amps.	Price Each
824587	5/5	$38.00	824597	100/100	$40.00
824588	10/10	38.00	824599	150/150	43.00
824589	15/15	38.00	824600	200/200	43.00
824591	25/25	38.00	824602	300/300	43.00
824594	50/50	40.00	824603	400/400	45.00
824596	75/75	40.00	824604	500/500	45.00
Type W-1, 2-Wire—1000 Volts—Test Gap 0.8″					
1026082	5	32.00	1026088	100	29.00
1026083	10	32.00	1026089	150	30.00
1026084	15	32.00	1026090	200	31.00
1026085	25	32.00	1026091	300	33.00
1026086	50	32.00	1026092	400	35.00
1026087	75	32.00	1026093	500	37.00
Type W-5—5000 Volts—Test Gap 1.6″					
986912	5	32.00	986922	100	32.00
986913	10	32.00	986924	150	33.00
986914	15	32.00	986925	200	34.00
986915	20	32.00	986927	300	37.00
986916	25	32.00	986928	400	39.00
986917	30	32.00	986929	500	41.00
986918	40	32.00	986930	600	44.00
986919	50	32.00	986931	800	50.00
986920	60	32.00	....	......	....
986921	75	32.00	....	......	....
Type W-7.5—7500 Volts—Test Gap 2.2″					
824317	5	58.00	824326	75	58.00
824318	10	58.00	824327	100	58.00
824319	15	58.00	824329	150	59.00
824320	20	58.00	824330	200	61.00
824321	25	58.00	824332	300	65.00
824322	30	58.00	824333	400	67.00
824323	40	58.00	824334	500	71.00
824324	50	58.00	824335	600	75.00
824325	60	58.00	824336	800	80.00
Type W-15—15000 Volts—Test Gap 3.3″					
824337	5	69.00	824347	100	69.00
824338	10	69.00	824348	120	69.00
824339	15	69.00	824349	150	72.00
824340	20	69.00	824350	200	75.00
824341	25	69.00	824351	250	78.00
824342	30	69.00	824352	300	84.00
824343	40	69.00	824353	400	87.00
824344	50	69.00	824354	500	93.00
824345	60	69.00	824355	600	97.00
824346	75	69.00	824356	800	101.00
Type W-22—23000 Volts—Test Gap 4.5″					
824772	5	130.00	824784	150	132.00
824773	10	130.00	824785	200	135.00
824774	15	130.00	824787	300	138.00
824776	25	130.00	824788	400	140.00
824779	50	130.00	824789	500	145.00
824781	75	130.00	824790	600	150.00
824782	100	130.00	824791	800	155.00

*For higher ratings, use type U.

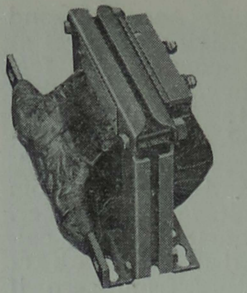
For double secondary and single primary add 75% to the list price. For double primary and single secondary add 50% to the list price. For double ratio by tap in secondary add 10% to the list price.

Shipping weight: W-1, 3 wire, 16 pounds; W-1, 2 wire, 10 pounds; W-5, 16 pounds; W-7.5, 30 pounds; W-15, 50 pounds; W-22, 80 pounds.

WESTINGHOUSE CURRENT TRANSFORMERS

TYPE KO INDOOR CURRENT TRANSFORMERS

Dry-Type for 5000 Volts



Type KO current transformers are intended, primarily, for use with indicating instruments and relays, but they have good accuracy when used for watthour meter work if the burden for each transformer is only one meter.

Each transformer is rated at 25-volt-amperes, and is compensated for 2½ volt-amperes.

KO transformers may be mounted either on pipe framework running at right angles to the primary conductor by means of U bolts, or on a flat surface by means of screws or bolts. The KO transformer is from 4½ to 5 inches wide, 6½ inches high and 10¼ to 13¾ inches long. Approximate shipping weight is 15 pounds.

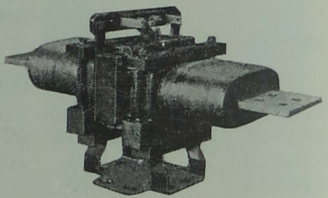
Cat. No.	Primary Amps.*	Price Each	Cat. No.	Primary Amps.*	Price Each
651898	5	$24.00	651913	200	$26.00
651899	10	24.00	651915	300	27.00
651900	15	24.00	651916	400	28.00
651902	25	24.00	651917	500	†27.00
651905	50	24.00	651918	600	†31.00
651907	75	24.00	651920	800	†33.00
651909	100	24.00	651921	1000	†40.00
651911	150	25.00	707270	1200	†44.00

†Cable terminals not included, if desired, they should be ordered separately at **$4.00** list price per set.

*For intermediate ratings use price of next higher rating.

TYPE U INDOOR CURRENT TRANSFORMERS

Dry Type for 5000, 7500 and 15000 Volts



The type U current transformer is an extension of the type W into the higher current ratings. It differs from the type W in that it is a bar type transformer with a single turn primary.

Type U-5 (5000 Volts)—Test Gap 1.6″

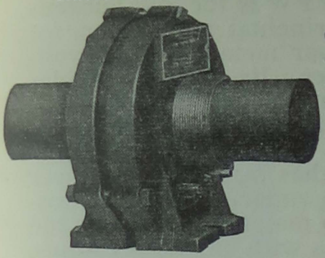
Cat. No.	Primary Ratings	Price Each	Cat. No.	Primary Ratings	Price Each
824236	1000	$50.00	824240	2500	$75.00
824237	1200	60.00	824241	3000	75.00
824238	1500	60.00	824242	4000	80.00
824239	2000	65.00	824243	5000	90.00
Type U-7.5 (7500 Volts)—Test Gap 2.2″					
824407	1000	70.00	824411	2500	90.00
824408	1200	75.00	824412	3000	90.00
824409	1500	75.00	824413	4000	100.00
824410	2000	80.00	824414	5000	110.00
Type U-15 (15000 Volts)—Test Gap 3.3″					
824415	1000	90.00	824419	2500	100.00
824416	1200	95.00	824420	3000	105.00
824417	1500	100.00	824421	4000	115.00
824418	2000	100.00	824422	5000	125.00

WESTINGHOUSE CURRENT TRANSFORMERS

TYPE FR INDOOR THROUGH-TYPE

For Relay and Circuit-Breaker Trip Coil Operation

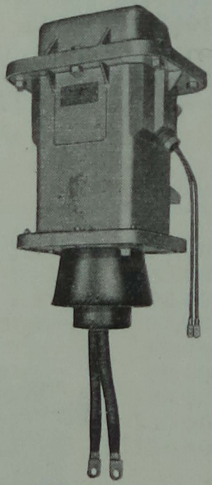
Rated Circuit Voltage, 2500-7500-15,000; 25 to 60 Cycles



Made in through-type construction for relay and circuit breaker trip coil operation. These transformers should not be used for metering, nor is it advisable to use same transformer for both relays and instruments. These transformers have sufficient capacity to operate relays or trip coils and will have an error in ratio not exceeding 10 per cent where the burden at 4 amperes does not exceed 25 volt-amperes at 25 cycles or 55 volt-amperes at 60 cycles. They should not be used with relays where the circuit-breaker trip coil is in series with the relay.

Mfrs. No.	Primary Amperes	Volts	Diameter Opening in Tube, Inch	Wt. Lbs. Net	Wt. Lbs. Shpg.	Price Each
125076	200	2500	1⅝	17	40	**$31.00**
125078	300	2500	2⅛	12	30	**26.00**
125079	400	2500	2⅜	10	30	**26.00**
125080	500	2500	2⅜	9	25	**26.00**
125084	200	7500	1⅝	17	40	**37.00**
125086	300	7500	2⅛	12	30	**31.00**
125087	400	7500	2⅜	10	30	**31.00**
125088	500	7500	2⅜	9	25	**31.00**
651534	200 & 300	15000	1⅝	26	50	**43.00**
651535	400-500-600	15000	2⅜	30	55	**52.00**

TYPE WO OUTDOOR DRY-TYPE CURRENT TRANSFORMERS



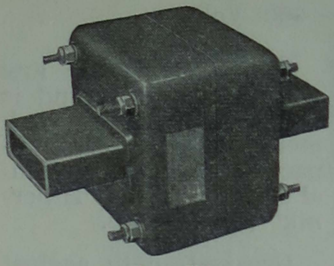
Type WO transformers are dry-type, gum-filled units designed for outdoor installations. The insulation is in line with latest ASA standards, but this type is not available in the 25-kv. class. The ratio and phase angle performance is equal to the type W, allowing use of these transformers for high-accuracy metering. The coil and core design of type W transformers is used in WO transformers, except that the primary leads are both brought out through the bottom of the case through a porcelain bushing.

TYPE WO-5 5000 Volts Test Gap 2.2″			TYPE WO-7.5 7500 Volts Test Gap 3.3″			TYPE WO-15 15000 Volts Test Gap 4.5″		
Pri.* Amps.	Mfrs. No.	Price Each	Pri.* Amps.	Mfrs. No.	Price Each	Pri.* Amps.	Mfrs. No.	Price Each
5	**824611**	**$57.00**	5	**824631**	**$87.00**	5	**893330**	**$124.00**
10	**824612**	**57.00**	10	**824632**	**87.00**	10	**893331**	**124.00**
15	**824613**	**57.00**	15	**824633**	**87.00**	15	**893332**	**124.00**
20	**824614**	**57.00**	20	**824634**	**87.00**	20	**883333**	**124.00**
25	**824615**	**57.00**	25	**824635**	**87.00**	25	**893334**	**124.00**
30	**824616**	**57.00**	30	**824636**	**87.00**	30	**893335**	**124.00**
40	**824617**	**57.00**	40	**824637**	**87.00**	40	**893336**	**124.00**
50	**824618**	**57.00**	50	**824638**	**87.00**	50	**893337**	**124.00**
60	**824619**	**57.00**	60	**824639**	**87.00**	60	**893338**	**124.00**
75	**824620**	**57.00**	75	**824640**	**87.00**	75	**893339**	**124.00**
100	**824621**	**57.00**	100	**824641**	**87.00**	100	**893340**	**124.00**
150	**824623**	**59.00**	120	**824642**	**89.00**	150	**893342**	**129.00**
200	**824624**	**63.00**	150	**824643**	**92.00**	200	**893343**	**132.00**
300	**824626**	**70.00**	200	**824644**	**95.00**	300	**893345**	**134.00**
400	**824627**	**77.00**	300	**824646**	**99.00**	400	**893346**	**136.00**
500	**824628**	**78.00**	400	**824647**	**102.00**	500	**893347**	**137.00**
600	**824629**	**79.00**	500	**824648**	**109.00**	600	**893348**	**138.00**
800	**824630**	**80.00**	600	**824649**	**115.00**	800	**893349**	**139.00**
1000	**1013989**	**85.00**	800	**824650**	**120.00**	......	....	....

*For double primary add 35 per cent to highest rating.
For double secondary add 50 per cent to highest rating.

WESTINGHOUSE CURRENT TRANSFORMERS

INDOOR THROUGH-TYPES FB AND FS



Type FB

The FB current transformer is furnished with either single or double secondary for 2500 or 7500-volt service. Higher voltage ratings and odd size openings may be obtained. Prices upon request.

The FS transformer is similar to the FB. It is supplied with a circular opening so that the transformer may be slipped over a cable or stud. Quotations on higher capacities and higher voltage ratings will be furnished upon request.

Type FB Single Secondary

2500 Volts			7500 Volts	
Mfrs. No.	Price Each	Primary Amperes	Mfrs. No.	Price Each
305244	**$60.00**	750	**443801**	**$63.00**
519814	**60.00**	750	**519830**	**63.00**
125065	**63.00**	1000	**443802**	**65.00**
519815	**63.00**	1000	**519831**	**65.00**
305245	**60.00**	1500	**443803**	**62.00**
519816	**60.00**	1500	**519832**	**62.00**
125069	**50.00**	2000	**443804**	**53.00**
125070	**50.00**	2000	**443805**	**53.00**
519817	**50.00**	2000	**519833**	**53.00**
305246	**55.00**	2500	**443806**	**58.00**
519818	**55.00**	2500	**519834**	**58.00**
125072	**62.00**	3000	**443807**	**65.00**
519819	**62.00**	3000	**519835**	**65.00**
219799	**82.00**	4000	**443808**	**85.00**
519820	**82.00**	4000	**519836**	**85.00**
219800	**93.00**	5000	**443809**	**96.00**
519821	**93.00**	5000	**519837**	**96.00**
305247	**136.00**	7500*	....	....
241777	**165.00**	10000*	....	....
526438	**216.00**	15000*	....	....
526439	**247.00**	20000*	....	....
526440	**309.00**	25000*	....	....

Type FB Double Secondary

519822	**105.00**	750	**519838**	**110.00**
519823	**105.00**	1000	**519839**	**110.00**
519824	**105.00**	1500	**519840**	**108.00**
519825	**88.00**	2000	**519841**	**93.00**
519826	**108.00**	2500	**519842**	**100.00**
519827	**108.00**	3000	**519843**	**113.00**
519828	**143.00**	4000	**519844**	**148.00**
519829	**163.00**	5000	**519845**	**168.00**

Type FS Single Secondary

519798	**40.00**	750	**519806**	**44.00**
519799	**43.00**	1000	**519807**	**47.00**
519800	**45.00**	1500	**519808**	**50.00**
519801	**50.00**	2000	**519809**	**55.00**

Type FS Double Secondary

519802	**70.00**	750	**519810**	**77.00**
519803	**75.00**	1000	**519811**	**81.00**
519804	**79.00**	1500	**519812**	**88.00**
519805	**87.00**	2000	**519813**	**97.00**

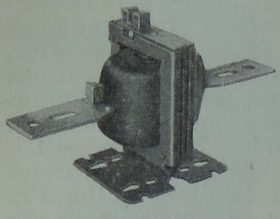
*The 7500-ampere capacities and higher are insulated for 500 volts only, and are so constructed that they can be placed over a bus bar in place, the two halves being joined by interleaving the laminations of the magnetic circuit and inserting the bolts.

Weights and dimensions will be furnished upon request.

WESTINGHOUSE CURRENT TRANSFORMERS

TYPE WE INDOOR CURRENT TRANSFORMERS

Dry Type—600 Volts



Type WE
200 and 400 Amperes

Type WE is for low voltage metering, and is suitable for network metering. A small, compact unit with exceptional accuracy using "Hipernik" for the core.

Great strength against instantaneous over-current. Mechanically, 250 times normal current can be safely guaranteed, while thermally the windings will stand 70 times normal current for one second. Accurate for continuous operation up to 150% normal current.

These transformers are considered in the field as "The Standardized Transformers," and are entirely interchangeable with other transformers designed to meet the E.E.I. specifications.

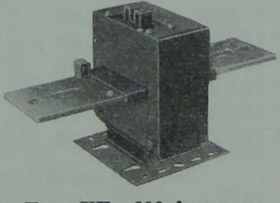
Two-coil design, the end frame completely surrounds the coils, bracing them against disruptive effects of short-circuit currents, protecting them against injury during handling, and making it unnecessary in crowded locations to allow for clearance over the coil.

The secondary terminals are of the solderless type. A small solderless connector is provided on one primary terminal for potential connection. Mounting feet are arranged for either flat surface, or pipe frame mounting by means of U-bolts.

Cat. No.	Type	Amperes	Net Wt. Lbs.	Price Each
1065946	WE	200	8	**$29.00**
1065947	WE	400	8	**29.00**

TYPE UE INDOOR CURRENT TRANSFORMER

Dry Type—600 Volts



Type UE—600 Amperes

Type UE has the same application as the WE current transformer, described above, except for higher current rating.

Through type design, the primary bar being insulated by a Micarta tube. The core and coils are protected by a metal case, with secondary terminals of the solderless type mounted on top of the case. A small solderless connector is provided on one primary terminal for potential connection.

Due to the through type construction there is no practical mechanical limit. Thermally the windings will stand 100 times normal current for one second.

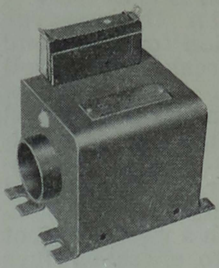
These transformers are considered in the field as "The Standardized Transformers," and are entirely interchangeable with other transformers designed to meet the E.E.I. specifications.

Cat. No.	Type	Amperes	Net Wt. Lbs.	Price Each
1104011	UE	600	8	**$29.00**

WESTINGHOUSE CURRENT TRANSFORMERS

TYPE FW INDOOR CURRENT TRANSFORMERS

Dry Type—1000 Volts



Type FW is for low burdens with principal application for watt-hour meters on low voltage lines. Its design provides a compact, easy-to-install through-type transformer. By careful design, exceptional accuracy has been obtained over a wide range, making it possible to meter from 20 to 1200 amperes with only two ratings. It may be mounted in any position, and because of its small dimensions and light weight it may be used in smaller metering boxes.

Primary insulation is good for 10,000 volt test with bare cable. Transformers may be used with insulated cable on higher voltage circuits.

Live lead passes through a Micarta tube of sufficient thickness and length to meet the requirements of the rated voltage, eliminating a break in primary line. The entire unit is enclosed in a sheet steel case. Secondary terminal blocks are optional.

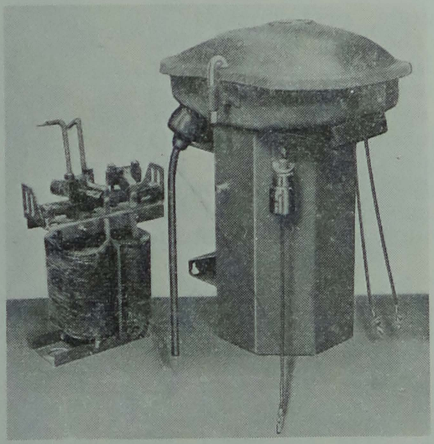
With Terminal Block

Cat. No.	Primary Amperes	Dimens., Inches			Opening in Tube	Net Wt. Lbs.	Price Each
		Hght. Over-all	Wdth.	Lgth. Over-all			
1075575	200/5	6⅝	4⅝	6⅜	1¼	10	**$35.00**
1075576	600/5	6⅝	4⅝	6⅜	2	7	**35.00**
Without Terminal Block							
1065476	200/5	4⅞	4⅝	6⅜	1¼	10	**35.00**
1065477	600/5	4⅞	4⅝	6⅜	2	7	**35.00**

WESTINGHOUSE POTENTIAL TRANSFORMERS

TYPE VSP SURGE-PROTECTED

Oil-Insulated



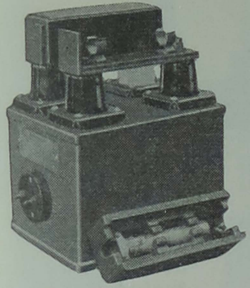
The type VSP surge-protected potential transformers are designed for outdoor service. The tanks, covers and De-ion gaps from the CSP distribution transformers have been adapted to potential transformers, giving them effective protection against lightning and line surges.

These units are available in the following ratings, 60 cycles.

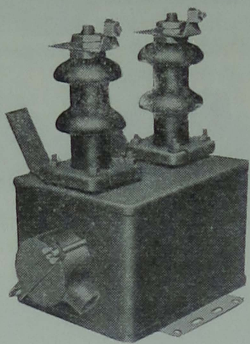
Cat. No.	Voltage Class	Price Each	Cat. No.	Voltage Class	Price Each
911448	2300*	**$90.00**	**910940**	6900*	**$229.00**
914450	4600*	**131.00**	**911952**	11500†	**229.00**
1023220	6900†	**170.00**	**910942**	13800†	**234.00**

*△ or Y. †△ only.

WESTINGHOUSE POTENTIAL TRANSFORMERS
DRY-TYPE
TYPE PT INDOOR AND TYPE PTO OUTDOOR
2/1 to 120/1 Ratio—230 to 13,800 Volts



Type PT—Indoor



Type PTO—Outdoor

Types PT and PTO, have co-ordinated insulation corresponding to the levels proposed by the American Institute of Electrical Engineers and now in the process of being adopted by the American Standards Association.

These two types are essentially the same except that the PT line is for indoor service and the PTO for outdoor service. The transformers embody a number of outstanding improvements:

Coordinated insulation; increased mechanical strength; compound-filled by a special process; hermetically sealed; uniform accuracy for all ratings; bushings, either stud type or cable type; small and compact.

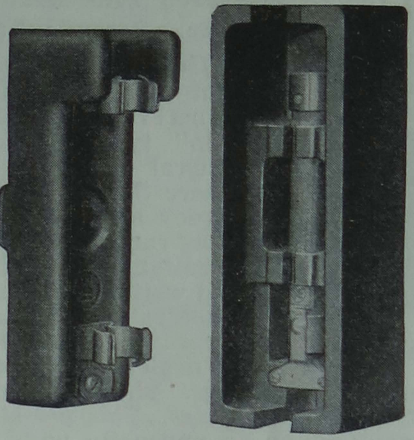
High-voltage coil is wound on a Moldarta spool. The low-voltage coil is wound on a Micarta tube and slipped into the center of the high-voltage Moldarta spool. The part of the coil surrounded by the iron core is protected by Micarta channels.

All bushings are completely sealed to retain compound in case. Types PT and PTO are also available in cable-type bushings.

Type PT Indoor Transformers—60 Cycles

Cat. No.	Primary Voltage	Ratio	Price Each
	Without Fuses		
1023 981	230	2:1	**$ 34.00**
1023 982	460	4:1	**35.00**
1023 983	575	5:1	**36.00**
1023 984 △ or Y	2300	20:1	**37.00**
851 634 △ or Y	4600	40:1	**68.00**
958 887 △ only	6900	60:1	**89.00**
851 635 △ or Y	6900	60:1	**136.00**
958 997 △ only	11500	100:1	**130.00**
851 636 △ only	13800	120:1	**136.00**
	With Fuses		
851 640	230	2:1	**44.00**
851 641	460	4:1	**45.00**
851 642	575	5:1	**46.00**
851 643 △ or Y	2300	20:1	**47.00**
851 644 △ or Y	4600	40:1	**85.00**
958 888 △ only	6900	60:1	**109.00**
851 645 △ or Y	6900	60:1	**156.00**
1064 404 △ only	11500	100:1	**150.00**
851 646 △ only	13800	120:1	**156.00**
Type PTO Outdoor Transformers—60 Cycles			
1064 355	230	2:1	**59.00**
1064 356	460	4:1	**60.00**
1064 357	575	5:1	**61.00**
1013 886 △ or Y	2300	20:1	**62.00**
1013 887 △ or Y	4600	40:1	**100.00**
1064 316 △ only	6900	60:1	**130.00**
1013 888 △ or Y	6900	60:1	**180.00**
1064 373 △ only	11500	100:1	**175.00**
1013 889 △ only	13800	120:1	**180.00**

POTENTIAL TRANSFORMER FUSES AND TYPE H FUSE MOUNTINGS
ENCLOSED CARTRIDGE TYPE



2500-Volt Mounting, Open to Show Method of Supporting Fuse in Cover

Potential transformer fuses are supplied to protect the circuit feeding the potential transformers from short circuits within the transformers. They may, however, be used to protect other circuits where the normal current does not exceed one-half an ampere. The fuses may be applied without preventive resistances in such locations where the maximum short-circuit current does not exceed the interrupting capacity given in the table. When a preventive resistance is used the short-circuit current will be limited, irrespective of the power back of the fuse, to a value within the interrupting capacity of the fuse. For 15,000 and 23,000-volt service the same fuse with a different preventive resistance to limit the current and a different mounting is used.

The 2500-volt mounting is provided with a cover of molded insulation which holds the fuse and provides safety in handling. It can also be mounted directly on 1¼-inch pipe by means of an adapter, No. 385766.

The higher voltage mountings use corrugated Type H post insulators of the same type as used on the Type H bus support.

Type H Single-Pole Fuse Mountings

Fuse Mounting Mfrs. No.	For Use with Fuse Style No.	Max. Volts	Shpg Wt. Lbs.	Price Each
365022	562477	600	5	**$2.00**
365022	282431	2500	5	**2.00**
519327	282430	7500	20	**13.20**
519328	282429	15000	30	**14.55**
519329	282429	23000	30	**16.95**

Style number and list price include mountings only. Fuses must be ordered separately. Type H mountings are furnished for front connection only.

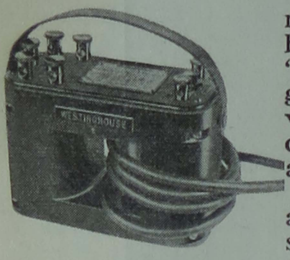
FUSES FOR ABOVE

Mfrs. No.	Volts	Std. Pkg.	Carton	Net Wt. Lbs. Carton	Price Each
562477	600	100	5	¾	**$0.67**
282431	2500	100	5	¾	**.67**
282430	7500	25	5	2	**2.75**
282429	15000	25	5	2	**3.00**
282429	23000	25	5	2	**3.00**

WESTINGHOUSE PORTABLE TRANSFORMERS

TYPE PC-137 PORTABLE CURRENT TRANSFORMER

25 to 133 Cycles—2300 Volts Maximum
Primary 1000 to 10 Amp.—Secondard 5 Amp.



Type PC-137

The PC-137 portable current transformer is a combination "through" and "tap" type. Designed for general portable service where the maximum in accuracy and breath of operating range are required.

Suitable for both current and watt measurements, and since ratio and phase angle errors are small, they may be neglected except for precision wattmeter readings. The phase angle will not affect ammeter readings. This portable transformer provides for an unusually wide range of ratios. Size, 8½x4x7" high with 1⅝x3" opening.

Cat. No.	Primary Rating at 5A. Secondary	Volt Amp. Burden	Volt-Amp. Compensation	Insulation Rating	Price Each
1001033	1000, 500, 250 100, 50, 25, 10	25	5	2300	$140.00

Addition to list price, for special ratios and phase angle test, **$26.00.**

For test at each additional frequency add one-half the listed test price.

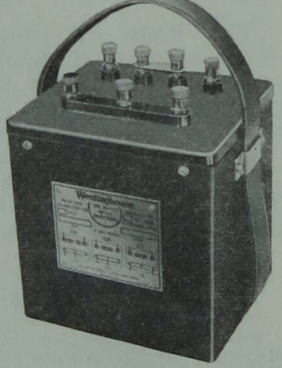
For test at each additional burden, add one-half the listed test price.

TYPE PV-130 PORTABLE VOLTAGE TRANSFORMERS

60 Cycles—230 to 6900 Volts

Type PV-130 portable voltage transformers are for use with Westinghouse portable instruments and recorders.

The accuracy and construction of these transformers is such that they may be advantageously used on all portable and laboratory applications in delta connection, except for standards. Convenient ratio-changing links permit quick ratio change. Terminals are designed so that a wide variety of test leads may be used.



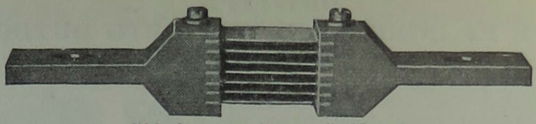
Type PV-130

Small Case

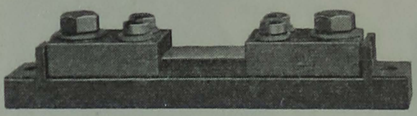
Cat. No.	Primary Rating 115 V. Sec.	Capacity Volt-Amps. Max.	Capacity Volt-Amps. Comp.	Test Voltage	Price Each
1055 985	230	100	25	4000	$88.00
	460	110	25		
	575	120	30		
1055 986	575	20	5	10000	105.00
	1150	75	18		
	2300	75	18		
	Large Case				
1055 987	1150	25	6	10200	127.50
	2300	100	25		
	4600	100	25		
1055 988	1725	40	10	14800	132.00
	3450	150	35		
	6900	150	35		

WESTINGHOUSE TYPE G SHUNTS

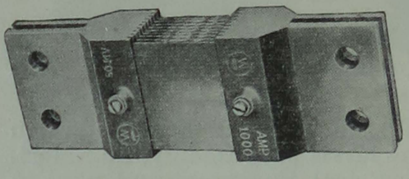
FOR DIRECT-CURRENT AMMETERS



500-Ampere Type G Shunt



75-Ampere Type G Shunt



1000-Ampere Type G Shunt

Type G shunts are designed for use on horizontal laminated bus bars, but will operate in any position without overheating. The catalog numbers include shunt as listed or illustrated but do not include leads or cable terminals. Shunt leads are furnished with all shunted type ammeters.

Switchboard Type—50-Millivolt Drop

Cat. No.	Capacity Amperes	Price Each	Cat. No.	Capacity Amperes	Price Each
936938	1*	$5.50	936931	750	$14.00
936939	1.5*	5.50	282642	800	15.00
936940	2*	5.50	282643	1000	20.00
936941	3*	5.50	282644	1200	23.00
724755	5*	5.50	282645	1500	29.00
936942	7.5*	5.50	282646	2000	33.00
724756	10*	5.50	282647	2500	42.00
724757	15*	5.50	282648	3000	50.00
936943	20*	5.50	936932	3500	67.00
703927	25*	5.50	282649	4000	85.00
936944	30	5.50	936933	4500	92.00
703928	50	5.50	282650	5000	100.00
703929	75	5.50	282651	6000	117.00
703930	100	5.50	936934	7500	140.00
703931	150	5.50	282652	8000	150.00
703932	200	5.50	306209	10000	200.00
703933	250	5.50	931117	12000	250.00
703934	300	6.25	936935	15000	325.00
282639	400	8.00	936936	18000	400.00
282640	500	9.75	936937	20000	450.00
282641	600	11.50	----------	---------	---------
		Portable Type—50 Millivolt Drop			
936945	1†	$7.00	724736	50	$7.00
936946	1.5†‡	7.00	724737	75‡	7.00
936947	2†	7.00	724738	100	7.00
936948	3†‡	7.00	724739	150‡	7.00
724732	5†	7.00	724740	200	7.00
936949	7.5†‡	7.00	724741	250	7.00
724733	10†	7.00	724742	300‡	8.25
724734	15†	7.00	724753	400	10.00
936950	20	7.00	724754	500	11.75
724735	25	7.00	936952	750‡	14.00
936951	30‡	7.00	----------	---------	---------

Note: Above 750 amperes, standard switchboard shunts may be used.

*Shunts of 25 ampere capacity and less must be calibrated with the instruments with which they are used.

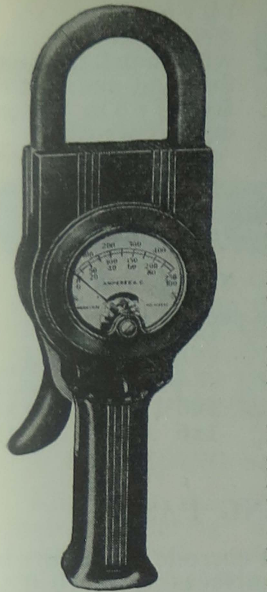
†Shunts of these capacities require instruments having scales of 75 or 150 divisions for greatest convenience.

‡Shunts of 10 amperes capacity and less must be calibrated with the instruments with which they are used.

Special Note: Shunts with 100-millivolt drop are available on special order.

WESTON CLAMP-AMMETER

MODEL 633



Measures alternating current in conductors up to 2 inches in diameter without breaking into circuit. Six full scale ranges — 0-10/25/50/100/250/500 amperes a-c. Accuracy within 3 percent on each scale between frequencies of 50 to 70 cycles. Positive action six-position range selector switch. Dependable magnetic circuit permits only the conductor within the clamping jaws to influence the indication. Not affected by surrounding fields.

Jaws heavily insulated to prevent short circuiting of adjacent conductors. Rugged bakelite construction provides utmost protection for operator. Can be used for remote indication by removing instrument from case and employing 50-foot socket-ended extension cable.

Voltage breakdown test 3700 volts a-c.

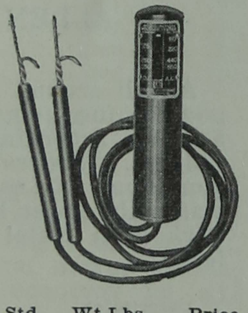
Size: 13⅝ inches by 4⅜ inches by 3½ inches.

Weight: 3¾ pounds.

Price, Model **633** Clamp-Ammeter	**$110.00**
Leather Carrying Case	**12.00**

Wooden Carrying Case with 50-foot extension cable and instrument socket. Price on application.

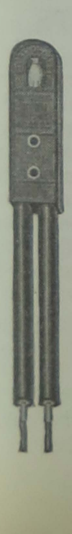
WIGGINGTON VOLTAGE TESTER



Used to locate open circuits, blown fuses and motors running single phase. May be used in phasing out motors. Indicates voltage on any line up to 550 volts and shows whether current is alternating or direct. Long rubber covered lead wires make it easy to hook into each side of the circuit.

Mfrs. No.	Description	Hght. In.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
5000	Voltage Tester	5½	1	¾	**$12.80**
5002	Tester Case	......	1	....	**1.30**

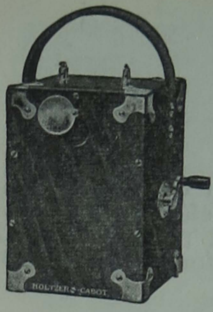
BRACH TEST-O-LITE



The Brach Test-O-Lite covers a wide range of voltages—110-550 volts A.C. or D.C. Can be conveniently carried in the pocket; neat and attractively furnished in bakelite. Locates burned-out fuses, electric light and motor troubles; troubles in automobile, motor boat and airplane spark plugs; open or short circuits, electric radio sets, household electrical appliances, etc. The Test-O-Lite can be used in testing high resistance leaks as it has the remarkable characteristic of becoming illuminated at 110 volts through resistance of 20,000,000 ohms (20 megohms) and frequently as high as 50,000,000 ohms (50 megohms).

Price, Test-O-Lite	each **$1.50**

HOLTZER-CABOT TESTING MAGNETOS



PORTABLE

Used by electric power companies and electrical contractors in locating grounds, open circuits, etc. Quarter-sawed golden oak cabinet. Equipped with generators and ringer movements and bells mounted inside the cabinet.

For No. 153109 Visual Signal add to list price, **$6.00.**

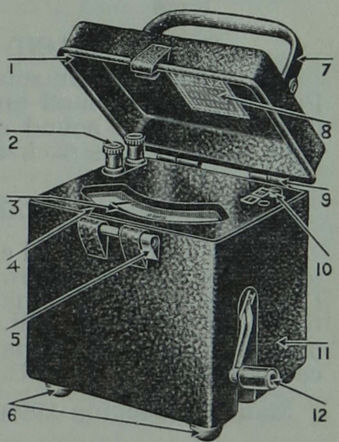
Mfrs. No.	Resist. Ohms	Dimensions, Inches Height	Width	Depth	Wt. Lb.	Price Each
153010	10000	8⅛	5½	4¾	9¼	**$31.00**
153035	35000	8⅛	5½	4¾	9¼	**32.50**
153050	50000	8⅛	5½	4¾	9¼	**34.00**
153100	100000	8⅛	6½	6¼	12	**34.00**

MEGOHM INSULATION METER

Double-Range—2000 Ohms to 50 Megohms

and 200 Ohms to 5 Megohms

Instantaneous readings; accurate results. Readings independent of speed; weighs only 11 lbs. Scale graduated to read directly in ohms or megohms. Weatherproof and dust-proof.



General Description

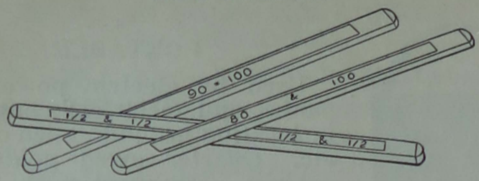
1. Flange on cover for weather protection.
2. Terminals have retaining screws to prevent loss.
3. Mirror to avoid parallax.
4. Plate of high dielectric strength.
5. Special cover to latch—simple and strong.
6. Rubber feet to reduce shocks.
7. Handle of proper form to avoid fatigue.
8. Instructions for use fastened in cover.
9. Flush hinges to facilitate packing.
10. Push button to change range.
11. One-piece aluminum case.
12. Disappearing handle securely attached.

The value of periodic tests can hardly be overestimated. They accurately show any deterioration of insulation and enable the operator to make repairs in time to prevent a breakdown that would delay production.

Price, Megohm Insulation Meter	**$240.00**

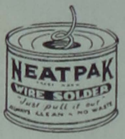
SELBY SOLDERS—FEDERATED

BAR SOLDER

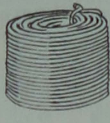

90 - 100
1/2 & 1/2
80
100
1/2 & 1/2

Used to solder sheet tin, sheet copper, galvanized iron; also for solder baths, electrical and radiator work. Standard bars, 1½ pounds. Also 1 pound bars for exact weight and for export. Standard packing, 100 pounds boxes.

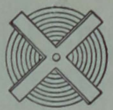
SOLDER WIRE


NEATPAK
WIRE SOLDER
Just pull it out

Cans



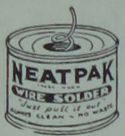
Coils



Reels

For repair shops, canneries, electrical work. Furnished in 1, 5 and 10-pound cans; 1, 5, 10, 25 and 50-pound coils; 5, 10, 25, 50-pound spools; 25 or 50-pound reels.

NEATPAK ROSIN CORE SOLDER


NEATPAK
WIRE SOLDER

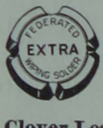
For use without flux on radio and fine electrical work. Furnished in 1 and 5-pound cans and 25-pound spools. 1-pound cans packed 50 cans per box; 5-pound cans packed 20 cans per box.

NEATPAK ACID CORE SOLDER

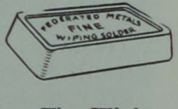
For general repair solder for use without flux. Furnished in 1-pound and 5-pound cans and 25-pound spools. 1-pound cans packed 50 cans per box; 5-pound cans packed 20 cans per box.

WIPING CAKE SOLDER

For wiping cable joints and plumbing jobs. Clover Leaf extra wiping to fit the ladle. Weight, 3 pounds. Fine wiping cake; weight, 5 pounds.


FEDERATED
EXTRA
WIPING SOLDER

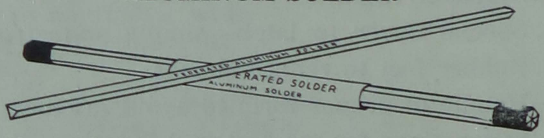
Clover Leaf Extra Wiping


FEDERATED METALS
FINE
WIPING SOLDER

Fine Wiping Cake

Standard packing 100-pound boxes.

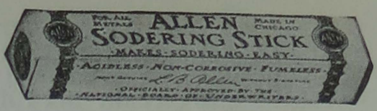
ALUMINUM SOLDER


FEDERATED SOLDER
ALUMINUM SOLDER

Each package weighs 1 pound and contains 6 sticks. No flux required.
Prices on application.

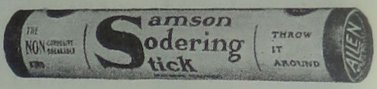
We are in a position to supply many items not shown in this catalog and shall be pleased to receive your inquiries and orders.

ALLEN SODERING STICKS


ALLEN
SODERING STICK
MAKES SODERING EASY
ACIDLESS · NON-CORROSIVE · FUMELESS

No. 039534

Makes a joint on any metal about three times as strong as is made with muriatic acid flux and one that is free from subsequent corrosion.

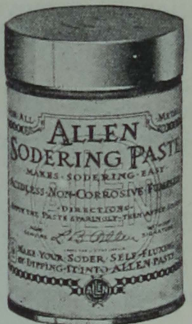

Samson
Sodering
Stick
NON
THROW IT AROUND
ALLEN

No. 039536

Heat metal parts to be sodered. Rub stick onto hot metal surfaces; apply the soder and hold sodered parts firmly together until set—about one second's time.

Description	Size Pkg.	Price Each
Allen Sodering Stick	1x5¼ in.	$0.30
Samson Sodering Stick	1x5 in.	.15

ALLEN SODERING PASTE


ALLEN
SODERING PASTE
MAKES SODERING EASY
ACIDLESS · NON-CORROSIVE · FUMELESS

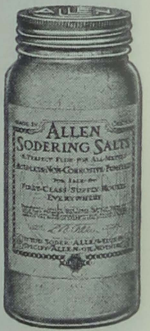
Will not corrode nor injure in any way surfaces to which it is applied. Soder dipped into this paste is self-fluxing. A form of the Allen stick.

Style Package	Price Each
2-Oz. Cans	$0.13
2-Oz. Tubes	.25
4-Oz. Cans	.25
½-Lb. Cans	.50
1-Lb. Cans	.90
5-Lb. Cans	4.40

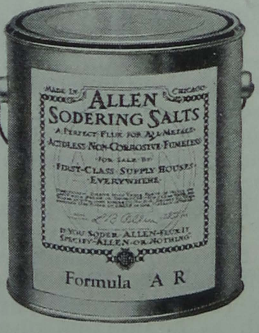
ALLEN SODERING SALTS

An all around flux in convenient powder form; just add water 3 to 5 times according to metal to be sodered. Soders all metals but aluminum. Takes a quick bite and makes the soder hold on. Non-acid. Packed in metal or glass as preferred.

Description	Price Each
½-Lb. Bottles	$0.40
1-Lb. Bottles	.59
5-Lb. Bottles	2.70


ALLEN
SODERING SALTS

ALLEN A.R. SODERING SALTS


ALLEN
SODERING SALTS
A PERFECT FLUX FOR ALL METALS
ACIDLESS NON-CORROSIVE FUMELESS
FOR SALE BY
FIRST-CLASS SUPPLY HOUSES
EVERYWHERE
Formula A R

Auto radiator repairers find Allen Formula A.R. Sodering Salts an excellent flux for either manufacture of new radiators or repair of old radiators. It cleans and solders brass or copper quickly, tripling the strength of the joint.

Comes packed in hermetically sealed steel containers.

Pails—10 pounds, **$0.45** per lb.; 25 pounds, **$0.40** per lb. Kegs—50 pounds, **$0.30** per lb.

NOKORODE SOLDERING MATERIAL

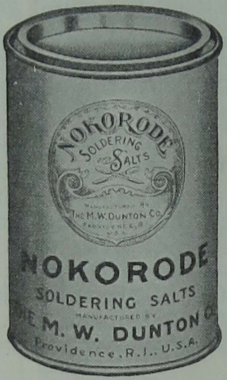
SOLDERING PASTE

NOKORODE
SOLDERING PASTE
MANUFACTURED BY THE M.W. DUNTON CO. PROVIDENCE, R.I.

Will flux all metals except Aluminum. Takes the place of acid in all soldering jobs. Absolutely non-corrosive, safe as resin and rapid as acid. Not affected by heat and does not spatter. The solder will not turn dark after using and the work has the highest tensile strength known.

Size of Can	Standard Package		Price
2 ounces	12 to Carton	each	$0.10
1 pound	6 to Carton	per lb.	.70
10 pounds	Any Quantity	per lb.	.50
25 pounds	Any Quantity	per lb.	.45
50 pounds	Any Quantity	per lb.	.43
100 pounds	Any Quantity	per lb.	.40

SOLDERING SALTS


NOKORODE
SOLDERING SALTS
MANUFACTURED BY THE M.W. DUNTON CO. Providence, R.I., U.S.A.

Eliminates the use of corrosive soldering acid and makes perfect, lasting and non-corrosive joints. Extensively used by plumbers, tinsmiths and leading manufacturers. No disagreeable fumes while under heat—will not burn the operator's hands or clothing. It is recommended to dissolve one pound of these salts in one gallon of water.

Size of Can	Standard Package		Price
6 ounces	12 to Carton	each	$0.20
1 pound	6 to Carton	per lb.	.50
5 pounds	Any Quantity	per lb.	.40
25 pounds	Any Quantity	per lb.	.30
50 pounds	Any Quantity	per lb.	.27
100 pounds	In Drum	per lb.	.24

INSULATING TAPES

OKONITE RUBBER TAPE

OKONITE
TAPE
THE OKONITE CO.
NET WEIGHT

Unequalled for splicing submarine, underground, aerial or interior wires and cables. Okonite Tape means permanence and economy in all lines.

Made in one color (slate) and packed in tin boxes. Any width or weight roll can be made, but unless otherwise specified ¾-inch width in 8-ounce net rolls will be furnished on orders.

Prices on application.

MANSON FRICTION TAPE

THIS BOX CONTAINS ½ POUND ¾ INCH
BLACK
Manson Tape
MANUFACTURED SOLELY BY THE OKONITE CO. PASSAIC, NEW JERSEY

Manson Tape is a rubber-filled cloth tape for protecting insulated points against mechanical injury. Unequalled in uniformity, toughness and durability of fabric, high adhesiveness, strength, aging and weathering qualities.

Furnished in black or white in tin boxes. Any width or weight roll can be made, but, unless otherwise specified, ¾-inch black Manson, 8 ounce net weight will be furnished.

Prices on application.

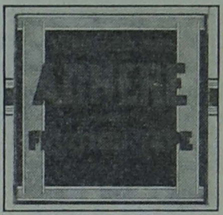
WESTINGHOUSE TAPES

Commodity Friction Tape

COMMODITY
FRICTION
TAPE
¾ INCH
BLACK
Westinghouse Electric & Manufacturing Co.
EAST PITTSBURGH, PENNA.

Commodity Tape is Friction Tape for general purposes, is low in price; approximately 57 feet per 8-ounce roll. Is a very tacky tape and is recommended for outdoor as well as indoor uses.

Adhere Friction Tape



An exceptionally high quality non-raveling tape made to Westinghouse specifications and guaranteed to meet all A. S. T. M. specifications except yardage, each 8-ounce roll containing 67 feet of tape. Adhere Tape is recommended for use wherever a high grade friction tape is required.

I. X. L. Friction Tape

IXL
¾ Inch
W
Black
FRICTION TAPE
ONE ROLL
Westinghouse Electric & Mfg Co
EAST PITTSBURGH PA.

Is a high grade friction tape that combines quality and high yardage. This tape conforms to all specifications of A. S. T. M. and each 8-ounce roll is guaranteed to contain 82½ feet of tape. Recommended for central stations, transportation and industrial plants.

Pittsburgh Splicing Compound

PITTSBURGH
¾
W
Inch
SPLICING COMPOUND
ONE ROLL
Westinghouse Electric & Mfg Co.
EAST PITTSBURGH, PA.

Pittsburgh Splicing Compound is a good grade of splicing compound for general use. It is entirely satisfactory for most wiring jobs as it has the necessary diaelectric strength and fusing qualities. 8-ounce rolls contain 20 feet of splicing compound.

Cable Tape

WESTINGHOUSE
Weather Proof
Cable Tape
Alkali Proof
Water Proof
Acid Proof
Westinghouse Electric Supply Co.

A heavy waterproof tape especially adapted for hard service. It is acid-proof, alkali-proof, which makes it especially adaptable for use in mines, factories, subways and submarine splicing. Contains 75 feet per roll and weighs approximately 10 ounces per roll.

Prices upon application.

UNCUT SHEET MICA

India, Domestic, Stained and Amber

Uncut mica is carefully selected as to quality and sizes it will cut. The different grades will cut assorted sizes as shown in table.

All grades are very closely trimmed and the wastage from them when cut will be slight.

Grade No.	Will Cut Ass't Sizes		Price per Pound		
	Width Inches	Length Inches	India	Black Stained India & Dom.	Madagascar Amber
A1	4 to 6	7 to 9	$5.50	$3.75	$3.50
1	3 to 5	5 to 7	4.25	3.00	2.90
2	1½ to 3½	4½ to 6	3.25	2.50	2.30
3	1½ to 3	3 to 4½	2.50	1.80	1.50
4	1½ to 2½	2½ to 3	1.90	1.00	1.00
5	1 to 2	2 to 2½	1.60	.60	.60

WESTINGHOUSE MICARTA PRODUCTS

MICARTA PLATE

Grade AA-200, with heavy asbestos-fabric base, is for use where mechanical strength is required at high temperatures.

Grades X-213 and X-423, with paper base, are for mechanical applications. Fair electrically under dry conditions.

Grades P-222 and P-432, with paper base, for intricate punchings. Cold punch up to 1/8-inch. Hot punch over 1/8-inch.

Grade XX-219 and XX429, with paper base, a high-grade material for drilling, tapping and machining.

Grades LE-221 and LE-431, with fine-weave fabric base, are for radio frequency and low power factor work, is mechanically strong.

Grades CE-223 and CE-433, with heavy-weave fabric base, for use as pump valves and piston rings. In thin sizes for electrical applications.

Grades L-238 and L-448, with fine-weave fabric base, for small gears and pinions. Also small punchings requiring mechanical strength.

Grade A-239, with asbestos-paper base, for use where temperature is high. Fire resistant.

Grades XXX-254 and XXX-464, with paper base, for high frequency, low power factor work. Has good machining properties.

Grades C-262 and C-466, with heavy weave fabric base, for general gear and pinion material.

Grade LE-273, with fine-weave fabric base, has good acid and alkali-resisting properties. For normal LE material use 221. Especially adapted for suction box covers.

Grade XXX-276, with paper base, for use where minimum material flow required under pressure. For normal XXX material use 254.

Grade XXP-279, with paper base, used for intricate punchings. Has good electrical and moisture-resisting properties.

Grade CE-281, with medium-weave fabric, has low moisture absorption and good acid and alkali-resisting properties. Especially adapted for suction box covers.

Grade PC-284, with combination paper and fabric base, for intricate punchings where mechanical strength in excess of paper is required.

Grade CE-285, with medium-weave fabric base, is special material with low coefficient of friction. Good electrically.

Grade C-286, with medium-weave fabric base, is used for small gears and pinions.

Grade AA-288, with reinforced asbestos-fabric wire base, for high-temperature mechanical mechanical applications. Withstands higher temperature than AA-200.

Grade X-289, with paper base, a good arc-resisting material. Fish-paper surface on X body.

Grade C-400, with heavy-weave fabric base, is a graphite-filled material.

Grade 474, with paper base, is odorless.

Grade NDP-872, with paper base, has black surface, white subsurface or core, used for name and designation plates.

Grade	Standard Thickness Inches	Standard Sheet Inches	Color	Standard Finish	Punching	Machining	Tensile Str.	Flexural Str.	Comp. Str. Flatwise	Dielectric		P. F.	Dielectric Constant	Water Abs. 24 Hrs.
										Short Time	Step by Step			
AA-200	1/8 to 2	35x35	Brown	Semi-Gloss	Poor	Fair	12000	24000	38000	50	30	------	------	1.5
X-213	1/32 to 2	36x36	Tan	Semi-Gloss	Fair	Good	12500	21000	35000	700	500	------	------	4.0
X-423	1/32 to 2	36x36	Black	Semi-Gloss										
P-222	1/64 to 3/64	36x36	Brown	Semi-Gloss	Good	Good	8000	15000	25000	600	400	------	------	4.0
P-432	1/16 to 1/4	48x48	Black	Semi-Gloss										
XX-219	1/16 to 1/4	48x48	Tan	Semi-Gloss	Good	Good	8000	16000	34000	700	500	.04	5.5	1.3
XX-429	9/32 to 2	36x36	Black	High-Gloss	(Hot)									
LE-221	1/32 to 1	36x36	Tan	Semi-Gloss	1/8" cold	Good	9000	19000	37000	500	300	.045	5.0	1.2
LE-431	1/32 to 1	36x36	Black	Semi-Gloss	1/4" hot									
CE-223	1/32 to 2	36x36	Tan	Semi-Gloss	1/8" cold	Good	8000	17000	36000	425	275	.055	5.5	1.8
CE-433	1/32 to 2	36x36	Black	Semi-Gloss	1/4" hot									
L-238	1/32 to 1	36x36	Tan	Semi-Gloss	1/8" cold	Good	10000	20000	35000	150	100	.10	7.0	2.0
L-448	1/32 to 1	36x36	Black	Semi-Gloss	1/4" hot									
A-239	1/16 to 1	36x36	Olive Br.	Semi-Gloss	Fair	**Fair**	8000	15000	36000	150	90	------	------	3.0 or less
XXX-254	1/16 to 2	36x36	Tan	Semi-Gloss	Fair	Good	7000	15000	25000	650	450	.035	5.0	1.0
XXX-464	1/16 to 2	36x36	Black	Semi-Gloss	(Hot)									
C-262	1/16 to 1/4	48x48	Tan	Semi-Gloss	Good	Good	10000	20000	38000	150	100	.10	7.0	2.2
C-466	9/32 to 10	36x36	Black	Semi-Gloss	(Hot)									
LE-273	1/16 to 2	36x36	Tan	Semi-Gloss	Poor	Good	6000	10000	36000	500	300	.05	------	0.75
XXX-276	1/32 to 1/4	36x36	Tan	Semi-Gloss	Good (Hot)	Good	7000	15000	34000	650	450	.03	5.0	1.25
XXP-279	1/64 to 1/4	36x36	Tan	Semi-Gloss	Good (Hot)	Good	8000	15000	25000	600	400	.04	------	1.0
CE-281	1/16 to 2	34x34	Tan	Semi-Gloss	Fair (Hot)	Good	7000	10000	36000	500	300	.05	------	1.0
PC-284	3/64 to 1/8	36x36 48x48	Tan	Semi-Gloss	Good	Good	10000	17000	30000	500	300	------	------	Not less than 3.0
CE-285	1/16 to 1	34x34	Tan	Semi-Gloss	Fair (Hot)	Good	7000	10000	36000	------	------	------	------	1.0
C-286	1/16 to 2	34x34	Tan	Semi-Gloss	Good (Hot)	Good	10000	20000	38000	150	100	.10	.70	2.2
AA-288	1/8 to 2	35x35	Brown	Semi-Gloss	Poor	Fair	12000	24000	38000	------	------	------	------	1.7
X-289	1/16 to 1	36x36	Gray	Semi-Gloss	Fair	Good	12500	21000	35000	700	500	------	------	Not less than 4.0
C-400	1/16 to 2	34x34	Black	Semi-Gloss	Good (Hot)	Good	10000	18000	36000	------	------	------	------	2.0
474	1/16 to 1/4	48x96	Black	High-Gloss	Fair	Good	8000	15000	---------	600	450	------	------	4.0
NDP-872	3/64 to 1/4	36x36 48x96	Black	High-Gloss or Satin	Poor	Fair	---------	---------	---------	------	------	------	------	-------

Prices

Thickness, Inches	NEMA Limits, per Lb.	Close Limits, per Lb.
.010 and under	**$5.00**	**$5.00**
Over .010 to .015 Inclusive	**3.50**	**4.40**
Over .015 to .025 Inclusive	**3.00**	**3.65**
Over .025 to .035 Inclusive	**2.35**	**2.75**
Over .035 to .050 Inclusive	**2.20**	**2.55**
Over .050	**2.00**	**2.20**

Approximate Weights of Standard Size Plates

The weight of all paper and fabric-base grades (not including asbestos grades 200 and 288) is one pound per 20 cubic inches. The weight of asbestos grades 200 and 288 is one pound per 16 cubic inches.

WESTINGHOUSE MICARTA PRODUCTS

MICARTA TUBES

Grade 52, with paper base, is primarily electrical. Use for radio coil forms, bus bar and general insulation. See Grade 92. Not satisfactory for mechanical applications where wall thickness exceeds ⅜ of an inch. Use Grade 76 or 79.

Grade 55, with paper base, is primarily electrical. Use for brush holders, tank liners, fuse tubes. Not satisfactory for mechanical applications where wall thickness exceeds ⅜ of an inch. Use Grade 76 or 79.

Grade 58, with paper base, is primarily electrical. Use for radio coil forms, bus bars and general insulation. Not satisfactory for mechanical applications where wall thickness exceeds ⅜ of an inch. Use Grade 76 or 79.

Grade 76, with fine-weave fabric base, is primarily mechanical. Use for table rolls, dryer rolls, etc.

Grade 79, with heavy-weave fabric base, is primarily mechanical. Use for oil-seal rings, rolls, etc.

Grade 90, with paper base, is primarily electrical. Has best electrical properties. Too brittle for coil form punching. Good machining. Best paper-base tubing for heavy walls. Grade 76 or 79 fabric recommended for heavy walls.

Grade 91, with fine-weave fabric base, is a special grade for bearing use only. Requires tungsten carbide tools for machining. Concentricity must be obtained by machining outside diameter. Furnished in random lengths unfinished.

Grade 92, with paper base, is primarily electrical. Best grade for punched and threaded radio coil forms. Extra good punching grade. Good resiliency and flexibility. Not satisfactory for greater than ⅛-inch wall.

Grade 93, with heavy-weave asbestos-fabric base, is primarily for heat resistance.

Grade 94, with asbestos-paper base, is primarily for heat resistance.

Grade 97, with fine-weave fabric base, has lowest moisture absorption. Small dimensional change. High resistance to acid and alkalis.

Standard lengths are as follows: Grades 52, 55, 58, 76, 90 and 97 tubing, 3/16 to ⅜-inch inside diameter inclusive, approximate lengths, 18 to 20 inches; 5/16 to 15/32-inch inside diameter inclusive, approximate lengths, 32 to 36 inches; ½-inch and over inside diameter, approximate lengths, 42 to 46 inches. Grades 79, 91, 93 and 94 tubing, 3/16 to ⅜-inch inside diameter inclusive, approximate lengths, 18 to 20 inches; 5/16-inch and over inside diameter, approximate lengths, 32 to 34 inches. Tubes of greater length than standard can be furnished in some sizes.

Standard inside diameters are as follows: 3/16 to 3 inches in steps of 1/16-inch; 3 to 6 inches in steps of ⅛-inch; 6 to 15 inches in steps of ¼-inch; 15 to 25 inches in steps of ½-inch; 25 to 36 inches in steps of 1-inch; over 36 inches on request.

Special finishes may be obtained on special negotiation. No. 61-F baked varnish finish for Grades 52 and 90 tubing; No. 134-E baked varnish finish is a high gloss for Grade 58 tubing. This finish can also be applied to Grade 52.

Grade	Color	Finish	§Physical Properties		Axial Compr. Lb./Sq. Inch	‡Water Abs. % Gain Wt. in 24 Hrs.	Electrical Properties Dielectric Volts/Mil		P. F. 106 Cycles	Min. Std. Wall Inches	Min. I. D. Inches	Max. Std. Lengths Inches
			Tensile Lb./Sq. Inch	Specific Gravity			Dry	Wet				
52	Tan	Wax†	11000	1.29	20000	3.00	1000	800	Under 3 %	1/32	3/16	46
55	Brown	Ground	8000	1.12	8500	33.00	800	500	....	1/32	3/16	46
58	Black	Oil	11000	1.29	20000	3.00	650	500	Under 3 %	1/32	3/16	46
76	Tan	Wax†	5800	1.25	22000	2.50	350	.....	....	1/16	3/16	46
79	Tan	Wax†	6500	1.25	15000	6.00	80	.....	....	3/32	1	34
90	Tan	Wax†	7500	1.32	10000	2.00	750	650	Under 3 %	1/32	3/16	36
91	Tan	None	5000	1.25	20000	....	.....	.....	....	1/16	3/16	36
92	Tan	Wax†	7000	1.32	10000	3.07	650	550	3.20 %	1/32	3/16	36
93	Tan	Oil	7000	1.34	5600	9.50	34	28	....	3/32	1	34
94	Tan	Oil	....	....	....	....	.....	.....	....	1/16	½	36
97	Tan	Oil	7600	1.29	23000	2.00	280	150	....	1/16	3/16	46

†Standard on tubes ¾ to 2 inches inside diameter inclusive. Other sizes oil finish standard. The standard wax finish is a gloss finish and will not take lacquer or varnish. §Physical and electrical properties are determined by standard A.S.T.M. methods of testing. ‡Standard A.S.T.M. water absorption test sample 1-inch inside diameter x 1⅛-inch outside diameter x 1-inch long.

MICARTA RODS

Grade AA-200M, with asbestos-fabric base, is for mechanical applications where strength is required at high temperatures.

Grades XX-219M and **XX-429M,** with paper base, have good moisture resistance. Used for electrical purposes.

Grade C-262M, with heavy-weave fabric base, is for mechanical application where strength is required.

Grades LE-221M and **LE-431,** with fine-weave fabric base, are recommended where good machining and electrical properties are required.

Standard lengths are as follows:

3/16-inch diameter or less is 12 inches.

Over 3/16-inch up to 1-inch diameter, inclusive, is 48 inches.

Over 1 inch up to and including 2 inches is 48 inches.

Maximum diameter, 2 inches. Synthetic resin bond.

Grade	Color	* Standard Finish	Physical Properties Strength — Lb./Sq. Inch			Minimum Diameter Inches
			Tensile	Flexural	Compressive	
AA-200M	Brown	Oil	....	....	....	¼
XX-219M	Tan	Wax	15000	25000	20000	3/16
XX-429M	Black	Oil				
C-262M	Tan	Wax	8000	21000	21000	¼
LE-221M	Tan	Wax	10000	24000	21000	3/16
LE-431M	Black	Oil				

*Special finishes: 61-F baked varnish finish may be obtained on special negotiation. This is a high gloss natural finish for Grades XX-219M, C-262M and LE-221M micarta rod. 134-E baked varnish finish is a high gloss black varnish finish for Grades AA-200M, XX-429M and LE-431M Micarta rod and may be obtained on special order.

Note: Molded micarta rod will be furnished unless otherwise specified on the order. Rod machined from Micarta plate can be obtained on special order.

WESTINGHOUSE INSULATING MATERIALS

MICA PLATE

Grade 207 White India Mica Plate—For commutator strips any length. Under-cutting necessary. It is built of white India mica splittings, bonded with a shellac; milled and has a shellac surface coating.

Grade 210 Amber Mica Plate. Similar to Grade 207, except built of Amber mica splittings, and undercutting is not necessary.

Grade 207 White India Mica			**Grade 210 Amber Mica**		
Thick. Inches	Approx. Wt. Lbs. Per Sheet	Price Per Lb. (10 to 99 lbs.)	Thick. Inches	Approx. Wt. Lbs. Per Sheet	Price Per Lb. (10 to 99 lbs.)
.018	1.40	**$1.855**	.018	1.40	**$2.755**
.020	1.74	**1.855**	.020	1.56	**2.755**
.025	2.22	**1.715**	.025	1.95	**2.61**
.030	2.70	**1.54**	.030	2.34	**2.465**
1/32	2.90	**1.54**	1/32	2.50	**2.465**
.035	3.10	**1.54**	.035	2.73	**2.465**
.040	3.50	**1.33**	.040	3.12	**2.32**
.045	3.90	**1.33**	.045	3.51	**2.32**
3/64	4.10	**1.33**	3/64	3.66	**2.32**
.050	4.40	**1.33**	.050	3.90	**2.32**
.060	5.90	**1.33**	.060	4.68	**2.32**
1/16	6.10	**1.33**	1/16	4.88	**2.32**
3/32	9.10	**1.33**	3/32	7.32	**2.32**
1/8	12.50	**1.33**	1/8	9.75	**2.32**

Standard sheet is 24x36 inches.

COLD FORMING MICA

Grade 237 Flexible Mica. For general purpose cold forming—slot cells, ground insulation and wrappers. Built of white mica splittings, with a flexible non-airdrying bond containing no shellac.

Grade 356 Flexible Mica. Similar to Grade 237 except faced on both sides with .007 inch fishpaper.

Grade	Size Inches	Thick. Inches	Approx. Wt. Lbs. Per Sheet	Price Per Lb. (10 to 99 Lbs.)
237	24x36	.005	.325	**$2.898**
237	24x36	.010	.678	**1.84**
237	24x36	.015	.918	**1.61**
237	24x36	.020	1.07	**1.61**
237	24x36	.025	1.45	**1.472**
237	24x36	1/32	2.04	**1.472**
356	24x36	.027	1.32	---------

HOT MOLDING MICA PLATE

Grade 251 White India Mica. For washers, bushings, tubes, filling strips, segmental rings and end bell insulation. It is built of white India mica splittings bonded with shellac and has good molding characteristics. It is milled.

Grade	Size Inches	Thick. Inches	Approx. Wt. Lbs. Per Sheet	Price Per Lb. (10 to 99 Lbs.)
251	24x36	.015	1.06	**$2.10**
251	24x36	.020	1.44	**2.10**
251	24x36	.025	1.86	**1.785**
251	24x36	.030	2.28	**1.47**
251	24x36	1/32	2.38	**1.47**
251	24x36	.035	2.70	**1.47**
251	24x36	.040	3.06	**1.365**
251	24x36	.045	3.48	**1.365**
251	24x36	3/64	3.60	**1.365**
251	24x36	.050	3.80	**1.365**
251	24x36	.060	4.74	**1.19**
251	24x36	1/16	4.95	**1.19**
251	24x36	3/32	7.5	**1.19**
251	24x36	1/8	10.2	**1.19**

WESTINGHOUSE INSULATING MATERIALS

HOT MOLDING MICA PLATE

For Heating Apparatus and Hot Forming

Grade 209—for heating apparatus operating below 500° C.; for forming and rolling. It is built of white mica splittings with a hard molding bond which completely burns out after the splittings are in place.

Grade 250—for heating apparatus operating above 500° C.; for hot forming and rolling. It is built of amber mica splittings with a hard molding bond which completely burns out after the splittings are in place.

Grade 338—for heating apparatus operating above 500° C.; for flat irons and similar apparatus. It is built of amber mica splittings with a hard molding bond having low percentage solid content.

Grade 351—for heating apparatus operating below 500° C. It is built of white mica splittings with a hard molding bond differing only slightly from the bond used in Grade 338.

Grade	Size Inches	Thick. Inches	Approx. Wt. Lbs. Per Sheet	Price Per Lb.
209	24x36	.010	.72	**$1.98**
209	24x36	.015	1.08	**1.914**
250	24x36	.010	.738	**3.135**
250	24x36	.015	1.11	**3.069**
338	24x36	.012	1.10	**3.135**
351	24x36	.012	.928	**1.98**

Grade 246—for field coil washers and under armature bands. It is hand built of white mica splittings and faced on both sides with asbestos paper.

Grade	Size Inches	Thick. Inches	Approx. Wt. Lbs. Per Sheet	Price Per Lb.
246	36x40	.025	1.46	**$1.98**

MICA WRAPPERS

Grade 227—for high voltage coil wrappers, slot cells, etc. It is built of white mica splittings faced on one side with .008″ varnished paper containing no metal particles and on the other side with .001″ Jap paper. The bond is flexible non-airdrying wet and contains no shellac.

Grade 232—for coil wrappers, slot cells, etc., where mechanical strength is important. It is built of white mica splittings, (3 layers) faced on one side with .004″ fishpaper and on the other side with .001″ Jap paper. The bond is flexible non-airdrying wet and contains no shellac.

Grade 324—for coil wrappers, slot cells, etc. It is built of white mica splittings, (2 layers) faced on one side with a .004″ red fishpaper and on the other side with .001″ Jap paper. The bond is flexible non-airdrying and contains no shellac.

Grade	Size Inches	Thick. Inches	Approx. Wt. Lbs. Per Sheet	Price Per Lb.
227	36x40	.015	1.13	**$1.5675**
232	36x40	.012	1.04	**1.805**
324	36x40	.010	.93	**1.995**

WESTINGHOUSE INSULATING MATERIALS

MICA WRAPPERS

Grade 365—for coil wrappers and slot cells. It is built of white mica splittings faced on one side with .001″ Jap paper. The bond is flexible, non-airdrying, wet and contains no shellac.

Grade 366—Similar to Grade 365 except it is faced on one side with cellophane.

Grade 367—Same as 365 and 366 except it is faced on one side with .001″ cellophane and on the other side with .001″ Jap paper.

Grades 365, 366 and 367 are made in thicknesses from .005″ to .020″, 36x36 inch sheet only. Prices on request.

Note: When plate is ordered cut into strips, either the full length or the full width of the sheet, the following cutting charges should be added to the prices on Mica plate and wrappers. Less than 1″ wide, **$0.15** per lb.; 1″ to 2 5/16″ wide, **$0.10** per lb.; 3 to 4 15/16″ wide, **$0.05** per lb.; 5″ wide and over no charge.

MICA TAPES

Grade 228—for general taping and strand insulation. It is built of white mica splittings faced on both sides with .001″ Jap paper. The bond is flexible, non-airdrying wet and contains no shellac.

Grade 240—for coils and general use where heavy tape and strength are required. It is built of white mica splittings faced on one side with .007″ varnished cambric and on the other with .001″ Jap paper. The bond is flexible, non-airdrying, wet and contains no shellac.

Grade 350—for general taping, wrappers, cells, etc., where flexibility and mechanical strength are required. It is built of white mica splittings faced on one side with .002″ untreated cambric and on the other side with .001″ Jap paper. The bond is flexible, non-airdrying, wet and contains no shellac.

Grade 362—For railway connectors and other applications where this type of material is preferable. Built of white Mica splittings faced on one side with .0015 untreated silk and on the other with .001″ jap paper. The bond is flexible, non-air drying wet and contains no shellac.

Grade	Thickness Inches	Yds. Per Roll	Approx. Wt. Lbs. Per Roll Widths ½″	¾″	1″	1½″	Price Per Lb.
228	.004	50	.22	.31	.44	.66	**$4.13**
228	.006	40	.22	.31	.44	.66	**4.13**
240	.013	18	.22	.31	.44	.66	**3.30**
350	.005	44	.22	.31	.44	.66	**4.13**
350	.007	32	.22	.31	.44	.66	**4.13**
362	.006	....	.22	.31	.44	.66	**5.13**
362	.013	....	.22	.31	.44	.66	**5.13**

Rolls are 3¾ inches in diameter. Grades 228 and 350 also supplied in sheets or rolls 36″ wide, or in 16-foot rolls 18″ wide. Minimum order for continuous length roll 36″ wide is 25 yards. Prices: .006″ thick and under **$3.05** per lb.; over .006″ thick **$2.61** per lb.

Mica tape is packed in air-tight cans to keep it in good condition until used. The cans are approximately 3⅞ inches in diameter and 20 inches deep and contain the following number of rolls of the various widths:

½ inch wide—38 rolls per can
¾ inch wide—25 rolls per can
1 inch wide—19 rolls per can
1½ inches wide—13 rolls per can

WESTINGHOUSE INSULATING MATERIALS

MICA TUBES

Grade 66—for high voltage application up to 100° C. unsupported and 125° C. if supported—brushholder studs. A composite material of paper and mica (approximately 50% mica) bonded with shellac.

Grade 67—for grid resistor bolt insulation, etc. A composite material of paper and mica (approximately 85% mica) bonded with shellac.

Grade 80—for grid resistors and where paper is not desirable. It is approximately 100% mica bonded with shellac.

Grade 87—for general use. Similar to grade 80 except a small amount of paper is used to reinforce and protect the mica. Approximately 98% mica bonded with shellac.

Grades 66†, 67, 80 and 87

Inside Dia. Inches	Price Per Foot Wall Thickness, Inches 1/32	1/16	3/32	⅛	3/16	¼
13/64	**$0.21**	**$0.31**	**$0.43**	**$0.57**	**$0.86**	**$1.24**
17/64	**.22**	**.34**	**.47**	**.61**	**.94**	**1.35**
21/64	**.23**	**.37**	**.51**	**.67**	**1.02**	**1.46**
25/64	**.24**	**.40**	**.55**	**.73**	**1.10**	**1.57**
29/64	**.26**	**.43**	**.59**	**.79**	**1.18**	**1.68**
33/64	**.28**	**.45**	**.63**	**.85**	**1.28**	**1.79**
37/64	**.29**	**.48**	**.69**	**.89**	**1.37**	**1.89**
41/64	**.30**	**.51**	**.73**	**.93**	**1.45**	**1.99**
45/64	**.31**	**.53**	**.77**	**.99**	**1.52**	**2.11**
49/64	**.33**	**.56**	**.80**	**1.06**	**1.60**	**2.20**
53/64	**.34**	**.58**	**.84**	**1.12**	**1.70**	**2.31**
57/64	**.36**	**.61**	**.88**	**1.17**	**1.78**	**2.43**
61/64	**.38**	**.64**	**.92**	**1.22**	**1.86**	**2.55**
1 1/32	**.40**	**.68**	**.96**	**1.30**	**1.96**	**2.69**
1 3/32	**.41**	**.71**	**1.00**	**1.37**	**2.04**	**2.79**
1 5/32	**.42**	**.73**	**1.04**	**1.42**	**2.12**	**2.90**
1 7/32	**.43**	**.75**	**1.08**	**1.46**	**2.20**	**3.02**
1 9/32	**.45**	**.78**	**1.12**	**1.51**	**2.28**	**3.13**

Standard Lengths

Inside Diameter Inches	Approx. Length Inches
Grade 66	
3/16 to 9/32	16
9/32 to 4½	34
4½ and over	22
Grade 67	
3/16 to ¼	11
¼ to 21/64	23
21/64 to 1½	35
Grades 80 and 87	
¼ to ⅜	11
⅜ to 2	23

Lengths and diameters other than those given can be furnished in some cases. Prices on request.

TREATED PAPERS

Standard Lengths—25 and 50 Yards

Grade 907 — Express Paper — A strong high-grade wood fiber paper with a smooth glazed surface. It is non-adhesive, flexible and coated on both sides. Used in building up layer insulation, spacing pieces, cells, etc.

Grade	Color	Thick. Inches	Width Inches	Average Break-down Voltage	Approx. Wt. Lbs. Per 25 Yd. Roll	Price Per Lb.
907	Brown	.008	40	1500	12.5	**$0.15**

Grade 918—Rope Paper — A very tough paper containing manila fiber. It is non-adhesive, flexible and coated on two sides. For slot insulation, washers and spacing pieces.

Grade	Color	Thick. Inches	Width Inches	Average Break-down Voltage	Approx. Wt. Lbs. Per 25 Yd. Roll	Price Per Lb.
918	Tan	.018	40	8500	25	**$0.49**

†Grade 66 tubes not made with 1/64″ wall.

WESTINGHOUSE INSULATING MATERIALS

TREATED PAPERS

Grades 948 and 990—Kraft Paper. A uniform grade of sulphate kraft paper with a smooth finish. It is non-adhesive, flexible and coated on two sides. For protective pieces, cells, coils, etc.

Standard Lengths—25 and 50 Yards

Grade Tan	Grade Black	Treatment	Thick. Inches	Width Inches	Price Per Linear Yd.
948	**990**	Varnished	.005	36	**$0.1775**
948	**990**	Varnished	.008	36	**.1975**
948	**990**	Varnished	.010	36	**.2275**
948	**990**	Varnished	.012	36	**.2375**
948	**990**	Varnished	.015	36	**.2875**

Grade 979 — Fishpaper (Rawhide Fiber). A strong, hard, fiber-like paper of rag stock with refined paraffine wax finish. It is flexible and coated on two sides. For cell lining and in armature slots.

Grade	Color	Thick. Inches	Width Inches	Average Break-down Voltage	Apprx. Wt. Lbs. Per 25 Yd. Roll	Price Per Lb.
979	Grey	.005	40	2000	7.5	**$0.50**
979	Grey	.008	40	3600	11.5	**.50**
979	Grey	.011	40	5500	16.0	**.50**
979	Grey	.016	40	6200	23.5	**.50**

Grade 980—Fullerboard (Pressboard). A tough cardboard-like material of cotton rag and paper clippings, vacuum dried, varnished and baked. It is not very flexible and is coated on two sides. Used for layer insulation and spacers in generator, motor, transformer and regulator coils. Also, for collars and shields on high-voltage transformers.

Grade	Color	Thick. Inches	Sheet Size Inches	Average Break-down Voltage	Approx. Wt. Lbs. Per Sheet	Price Per Lb.
980	Black	.035	48x60	7000	5.0	**$0.40**
980	Black	.060	52x84	12000	14.5	**.38**
980	Black	.084	52x84	16800	18.0	**.37**
980	Black	.130	52x84	26000	27.0	**.36**

TREATED FABRICS

Grades 1275 and 1232 — Heavy Canvas (Straight). A good grade of heavy varnished cotton duck of uniform quality. Used for end windings, padding and banding cushions. Also, as protective covering over coil supports and the ends of armatures.

Standard Lengths—25 and 50 Yards

Grade Tan	Grade Black	Thk. In.	Wd. In.	Average Breakdown V/M Tan	Average Breakdown V/M Black	Approx. Wt. Lb. Per Sq. Yd.	Price Per Sq. Yard Tan	Price Per Sq. Yard Black
¶1275	**†1231**	.020	36	700	750	1.16	**$0.58**	**$0.58**
¶1275	**¶1232**	.024	36	350	400	1.25	**.615**	**.615**
¶1275	**¶1232**	.030	36	350	400	1.45	**.77**	**.68**
¶1275	**¶1232**	.034	36	350	400	1.70	**.88**	**.78**
¶1275	**¶1232**	.037	36	350	400	1.85	**.91**	**.81**
¶1275	**¶1232**	.040	36	350	400	2.00	**.99**	**.84**

†Drill. ¶Duck—rough finish.

Minimum order for any one thickness, 25 yards.

Grades 1267 and 1268—Fabric (Straight). A fine weave varnished cotton cloth. Grade 1267 has a light paraffine finish, high oil and moisture resistance. Grade 1268 has a light oil finish and high dielectric qualities. Used where sheet materials are desired.

*Grade Tan	*Grade Black	Thk. In.	Wd. In.	Average Breakdown V/M Tan	Average Breakdown V/M Black	Approx. Wt. Lb. Per Sq. Yd.	Price Per Sq. Yard Tan	Price Per Sq. Yard Black
1267	**1268**	.005	36	850	950	.22	**$0.395**	**$0.395**
1267	**1268**	.007	36	850	950	.40	**.415**	**.415**
1267	**1268**	.010	36	950	1150	.55	**.455**	**.455**
1267	**1268**	.012	36	1050	1250	.65	**.49**	**.49**
1267	**1268**	.015	36	1100	1250	.80	**.545**	**.545**

*See opposite column for footnote.

WESTINGHOUSE INSULATING MATERIALS

TREATED FABRICS

Standard Lengths—25 and 50 Yards
Fabric—Bias

*Grade Tan	*Grade Black	Thk. In.	Wd. In.	Average Breakdown V/M Tan	Average Breakdown V/M Black	Approx. Wt. Lb. Per Sq. Yd.	Price Per Sq. Yard Tan	Price Per Sq. Yard Black
1266	**1265**	.007	36	850	950	.40	**$0.445**	**$0.445**
1266	**1265**	.010	36	950	1150	.55	**.485**	**.485**
1266	**1265**	.012	36	1050	1250	.65	**.52**	**.52**
1266	**1265**	.015	36	1100	1250	.80	**.575**	**.575**
				Silk—Straight				
2385	....	.002	36	1800	....	.11	**.53**	....
2385	....	.003	36	1700	....	.16	**.55**	....
2385	....	.005	36	1500	....	.26	**.59**	....
2385	....	.008	36	1200	....	.45	**.65**	....

Grade 1269—Combination Fishpaper and Fabric. Treated fabric and fishpaper combined by a tough, flexible, long-life insulating cement. Especially suitable for slot cells.

Grade	Color	Thick. Inches	Width Inches	Average Break-down V/M	Approx. Wt. Lbs., Per Sq. Yd.	Price Per Lb.
1269	Tan	.011	36	1000	0.65	**$1.11**
1269	Tan	.014	36	800	0.80	**.98**
1269	Tan	.017	36	700	1.00	**.92**
1269	Tan	.020	36	600	1.20	**.89**
1269	Tan	.025	36	500	1.50	**.825**

Grade 1273—Combination Copaco Paper and Fabric. Treated fabric and Copaco paper combined with a tough, flexible, long-life insulating cement. Especially suitable for slot cells.

Grade	Color	Thickness Inches	Width Inches	Approx. Wt., Lbs. Per Sq. Yd.	Price Per Lb.
1273	Tan	.014	36	0.80	**$0.98**
1273	Tan	.017	36	1.00	**.92**
1273	Tan	.020	36	1.20	**.89**
1273	Tan	.025	36	1.50	**.825**

Grades 1241 and 1250—Treated Asbestos Fabric (Straight). A closely woven varnished asbestos cloth of uniform quality and weave. Used for end windings and paddings. Also V-ring cushioning and banding.

*Grade	Color	Thickness Inches	Width Inches	Approx. Wt., Lbs. Per Sq. Yd.	Price Per Lb.
1241	Black	.051	36	2.40	**$2.75**
1250	Brown	.035	36	1.25	**3.95**
1250	Brown	.050	36	1.95	**2.65**

TREATED ASBESTOS TAPE

Grade 1258—Asbestos tape impregnated with varnish. Used where thorough impregnation is desired in deep seated insulation.

Grade	Color	Thickness Inches	Width Inches	Length Yards	Price Per Roll
1258	Black	.012	½	32	**$1.68**
1258	Black	.012	¾	32	**2.50**
1258	Black	.012	1	36	**3.43**
1258	Black	.017	½	22	**1.26**
1258	Black	.017	¾	22	**1.88**
1258	Black	.017	1	36	**3.34**
1258	Black	.017	1¼	36	**4.18**

*These grades can be furnished in any length, 36 inches wide. The following additional charges should be made to the list price per square yard for sheets, or for rolls shorter than standard: 18 to 24 yds., **$0.01** per sq. yd.; 8 to 17 yds., **$0.05** per sq. yd.; less than 8 yds., **$0.10** per sq. yd.

WESTINGHOUSE INSULATING MATERIALS

FRICTION TAPE—BIAS

Grade	Width Inches	Thick. Inches	Approx. Wt. Lbs. Per Roll	Yards Per Roll	Std. Pkg.	Price Per roll
1821	¾	.012	.383	22	12	**$0.31**
1821	1	.012	.51	22	10	**.41**
1821	1½	.012	.775	22	7	**.62**
1821	2	.012	1.02	22	5	**.82**

TREATED FABRIC TAPE—BIAS

Grades **1265 (Black)** and **1266 (Tan)**. A fine-weave bias-cut varnished cotton tape with good moisture resistance qualities. The black has higher dielectric values than the tan. For taping all kinds of coils, except the black should not be used for oil-immersed coils, and general taping by hand and machine, around corners or uneven surfaces.

Standard Lengths—36 and 72 Yards

Width In.	Approx. Wt. Lbs. Per Gross Yard .007 In. Thick.	.010 In. Thick.	.012 In. Thick.	Price Per Gross Yard .007	.010	.012
½	.80	1.20	1.32	**$1.02**	**$1.12**	**$1.20**
¾	1.20	1.25	1.96	**1.47**	**1.60**	**1.72**
1	1.60	1.67	2.60	**1.96**	**2.13**	**2.29**
1¼	2.00	2.15	3.24	**2.52**	**2.74**	**2.94**
1½	2.40	2.51	3.92	**2.94**	**3.20**	**3.43**
1¾	2.52	3.01	4.00	**3.52**	**3.84**	**4.11**
2	3.00	3.34	5.00	**3.91**	**4.26**	**4.57**

FIBER ROD—RED, GRAY, BLACK AND WHITE

Grade 3200-1

Standard Lengths, Approximately 5 Feet

Dia. In.	Approx. Feet Per Lb.	Price Per Ft.	Dia. In.	Approx. Feet Per Lb.	Price Per Ft.
3/32	241.	**$0.17**	15/16	2.4	**$1.10**
⅛	136.	**0.17**	1	2.1	**1.30**
3/16	60.	**0.17**	1⅛	1.7	**1.60**
¼	34.	**0.18**	1¼	1.4	**2.00**
5/16	22.	**0.20**	1⅜	1.1	**2.40**
⅜	15.	**0.22**	1½	.94	**2.80**
7/16	11.	**0.27**	1⅝	.80	**3.50**
½	8.5	**0.33**	1¾	.69	**4.50**
9/16	6.7	**0.40**	1⅞	.60	**6.50**
⅝	5.4	**0.47**	2	.53	**8.50**
11/16	4.5	**0.56**	2⅛	.47	**10.50**
¾	3.8	**0.68**	2¼	.42	**12.50**
13/16	3.2	**0.80**	2⅜	.38	**14.50**
⅞	2.8	**0.94**	2½	.34	**16.50**

FIBER SHEET—RED, GRAY, BLACK AND WHITE

Grade 7540-1. Tough, hard, dense, material material built of a number of layers of paper. It is not affected by oil and can be machined, punched and threaded. Used for making insulation plates, strips, washers, etc.

Standard Sheets, Approx. 46x72 Inches

Thickness Inches	Approx. Wt. Lbs. Per Sheet	Price Per Lb.	Thickness Inches	Approx. Wt. Lbs. Per Sheet	Price Per Lb.
1/64	2.5	**$0.50**	⅞	140	**$0.70**
1/32	5	**.50**	1	160	**.76**
1/16	10	**.50**	1⅛	180	**.86**
3/32	15	**.50**	1¼	200	**1.00**
⅛	20	**.50**	1⅜	220	**1.15**
3/16	30	**.51**	1½	240	**1.30**
¼	40	**.51**	1⅝	260	**1.50**
5/16	50	**.51**	1¾	280	**1.80**
⅜	60	**.53**	1⅞	300	**2.20**
7/16	70	**.53**	2	320	**2.60**
½	80	**.56**	2⅛	340	**3.00**
⅝	100	**.60**	2¼	300	**3.50**
¾	120	**.66**	2⅜	-----	-----
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WESTINGHOUSE INSULATING MATERIALS

FIBER TUBES—RED, BLACK AND GRAY

Grade 2794 — Standard Lengths, 24 to 36 Inches

Inside Diameter Inches	Price Per Foot, Wall Thickness, Inches 1/16	3/32	⅛	5/32	3/16
⅛	**$0.25**	**$0.30**	**$0.40**	-------	-------
3/16	**0.20**	**0.25**	**0.35**	-------	-------
¼	**0.12**	**0.14**	**0.18**	**$0.22**	**$0.26**
5/16	**0.13**	**0.15**	**0.19**	**0.24**	**0.28**
⅜	**0.14**	**0.16**	**0.21**	**0.26**	**0.31**
7/16	**0.15**	**0.17**	**0.22**	**0.28**	**0.33**
½	**0.16**	**0.18**	**0.24**	**0.30**	**0.36**
9/16	**0.17**	**0.20**	**0.26**	**0.32**	**0.39**
⅝	**0.18**	**0.21**	**0.28**	**0.35**	**0.42**
11/16	**0.20**	**0.23**	**0.30**	**0.37**	**0.45**
¾	**0.21**	**0.24**	**0.32**	**0.40**	**0.48**
13/16	**0.22**	**0.26**	**0.34**	**0.42**	**0.51**
⅞	**0.23**	**0.27**	**0.36**	**0.45**	**0.54**
15/16	**0.24**	**0.29**	**0.38**	**0.47**	**0.57**
1	**0.25**	**0.30**	**0.40**	**0.50**	**0.60**
1⅛	**0.27**	**0.43**	**0.44**	**0.55**	**0.66**
1¼	**0.29**	**0.36**	**0.48**	**0.60**	**0.72**
1⅜	**0.30**	**0.39**	**0.52**	**0.65**	**0.78**
1½	**0.32**	**0.42**	**0.56**	**0.70**	**0.84**
1⅝	**0.35**	**0.45**	**0.60**	**0.75**	**0.90**
1¾	**0.36**	**0.48**	**0.64**	**0.80**	**0.96**
1⅞	**0.39**	**0.51**	**0.68**	**0.85**	**1.02**
2	**0.41**	**0.54**	**0.72**	**0.90**	**1.08**
2⅛	**0.44**	**0.57**	**0.76**	**0.95**	**1.14**
2¼	**0.46**	**0.60**	**0.80**	**1.00**	**1.20**
2⅜	**0.47**	**0.63**	**0.84**	**1.05**	**1.26**
2½	**0.49**	**0.66**	**0.88**	**1.10**	**1.32**
2⅝	**0.52**	**0.69**	**0.92**	**1.15**	**1.38**
2¾	**0.55**	**0.72**	**0.96**	**1.20**	**1.44**
2⅞	**0.57**	**0.75**	**1.00**	**1.25**	**1.50**
3	**0.60**	**0.78**	**1.04**	**1.30**	**1.56**
3⅛	**0.61**	**0.81**	**1.08**	**1.35**	**1.62**
3¼	**0.62**	**0.84**	**1.12**	**1.40**	**1.68**
3⅜	**0.65**	**0.87**	**1.36**	**1.45**	**1.74**
3½	**0.67**	**0.90**	**1.20**	**1.50**	**1.80**
3⅝	**0.69**	**0.93**	**1.24**	**1.55**	**1.86**
3¾	**0.72**	**0.96**	**1.28**	**1.60**	**1.92**

Inside Diameter Inches	Price Per Foot, Wall Thickness, Inches 7/32	¼	9/32	5/16	----
½	**0.42**	**0.48**	-------	-------	-------
9/16	**0.46**	**0.52**	-------	-------	-------
⅝	**0.49**	**0.56**	-------	-------	-------
11/16	**0.52**	**0.60**	-------	-------	-------
¾	**0.56**	**0.64**	-------	-------	-------
13/16	**0.60**	**0.68**	-------	-------	-------
⅞	**0.63**	**0.72**	-------	-------	-------
15/16	**0.66**	**0.76**	-------	-------	-------
1	**0.70**	**0.80**	-------	-------	-------
1⅛	**0.77**	**0.88**	-------	-------	-------
1¼	**0.84**	**0.96**	-------	-------	-------
1⅜	**0.91**	**1.04**	-------	-------	-------
1½	**0.98**	**1.12**	-------	-------	-------
1⅝	**1.05**	**1.20**	-------	-------	-------
1¾	**1.12**	**1.28**	-------	-------	-------
1⅞	**1.19**	**1.36**	-------	-------	-------
2	**1.26**	**1.44**	**1.62**	**1.80**	-------
2⅛	**1.33**	**1.52**	**1.71**	**1.90**	-------
2¼	**1.40**	**1.60**	**1.80**	**2.00**	-------
2⅜	**1.47**	**1.68**	**1.89**	**2.10**	-------
2½	**1.54**	**1.76**	**1.98**	**2.20**	-------
2⅝	**1.61**	**1.84**	**2.07**	**2.30**	-------
2¾	**1.68**	**1.92**	**2.16**	**2.40**	-------
2⅞	**1.75**	**2.00**	**2.25**	**2.50**	-------
3	**1.82**	**2.08**	**2.34**	**2.60**	-------
3⅛	**1.89**	**2.16**	**2.43**	**2.70**	-------
3¼	**1.96**	**2.24**	**2.52**	**2.80**	-------
3⅜	**2.03**	**2.32**	**2.61**	**2.90**	-------
3½	**2.10**	**2.40**	**2.70**	**3.00**	-------
3⅝	**2.17**	**2.48**	**2.79**	**3.10**	-------
3¾	**2.24**	**2.56**	**2.88**	**3.20**	-------

WESTINGHOUSE INSULATING MATERIALS

UNTREATED PAPERS

Grade 1545 — Untreated Fishpaper (Rawhide Fiber). A hard, dense, gray paper. It is strong mechanically and has good dielectric strength. For slot cells; backing for coil wrappers and general insulating purposes.

Grade	Thick. Inches	Width Inches	Length Yards	Approx. Wt. Lbs. Per 25-Yd. Roll	Price Per Lb.
1545	.004	40	25 and 50	6.0	$0.55
1545	.007	40	25 and 50	11.0	0.50
1545	.010	40	25 and 50	16.5	0.50
1545	.015	40	25 and 50	25.0	0.50
			Inches	Per Sheet	
1545	.023	48	80	4.0	0.50
1545	.034	48	80	6.1	0.50
1545	.040	48	80	7.0	0.50
1545	.045	48	80	7.8	0.50
1545	.050	48	80	8.7	0.50
1545	.056	48	80	9.8	0.50
1545	.060	48	80	10.4	0.50
1545	.070	48	80	12.2	0.50
1545	.080	48	80	13.8	0.50
1545	.090	48	80	15.6	0.50
1545	.100	48	80	17.3	0.50
1545	.125	48	80	21.6	0.50

Grade 1581–1—Untreated Fullerboard (Pressboard). A medium-stiff board. Thickness up to and including .015 inches are made of 100% rag stock. Thickness over .015 inches are made of 75% rag and 25% wood pulp. Used for field coil washers, de-ion stacks and spacers of various kinds.

Grade	Thick. Inches	Width Inches	Length Yards	Approx. Wt. Lbs. Per 25-Yd. Roll	Price Per Lb.
1581–1	.007*	40	25 and 50	10.9	$0.46
1581–1	.010*	40	25 and 50	15.6	0.37
1581–1	.015*	40	25 and 50	23.4	0.37
1581–1	.020	40	25 and 50	31.0	0.34
1581–1	.025	40	25 and 50	38.7	0.34
			Inches	Per Sheet	
1581–2	.030†	48	60	4.0	0.33
1581–1	.040	62	84	7.5	0.31
1581–1	.056	62	84	11.5	0.31
1581–1	.062	48	96	12.8	0.31
1581–1	.078	62	84	16.0	0.30
1581–1	3/32	62	84	17.0	0.30
1581–1	1/8	62	84	22.5	0.30

*Tan in color-glazed surface.

†Gray in color-glazed surface.

All other thicknesses gray in color—unglazed.

Grade 4348–5—Rope Paper. A tough, strong paper made of manila rope fiber. High resistance to tear.

Grade	Thick. Inches	Width Inches	Length Yards	Approx. Wt. Lbs. Per 25-Yd. Roll	Price Per Lb.
4348–5	.010	40	25 and 50	9.5	$0.40
4348–5	.015	40	25 and 50	15.0	0.40

Grade 7232—Kraft Paper. A tough Kraft paper made of 100% purified sulphate pulp. More resistant to tear than other Kraft papers.

Grade	Thick. Inches	Width Inches	Length Yards	Approx. Wt. Lbs. Per 25-Yd. Roll	Price Per Lb.
7232	.0055	40	25 and 50	5.0	$0.40

Grade 5041—Copaco Paper. A high-grade insulating paper of 100% cotton rag, free from conducting and other foreign materials.

Grade	Thick. Inches	Width Inches	Length Yards	Approx. Wt. Lbs. Per 25-Yd. Roll	Price Per Lb.
5041	.007	40	25 and 50	15	$0.50
5041	.010	40	25 and 50	23	0.47
5041	.015	40	25 and 50	31	0.47

WESTINGHOUSE INSULATING MATERIALS

UNTREATED ASBESTOS PAPERS AND LUMBER

Grade 1597—A white asbestos lumber of asbestos fiber and cement formed under high pressure into strong rigid flat sheets. It is used for arc shields and general applications where heat-resisting material is required.

Grade	Thick. Inches	Width Inches	Length Inches	Approx. Wt. Lbs. Per Sheet	Price Per Sq. Ft.
1597	1/8	42	96	33.0	$0.20
1597	3/16	42	96	49.0	0.23
1597	1/4	42	96	65.5	0.27
1597	3/8	42	96	98.0	0.30
1597	1/2	42	96	131.0	0.36
1597	3/4	42	96	196.5	0.50
1597	1	42	96	262.0	0.70

Grade 1638—An asbestos sheet known as millboard. It is less flexible than grade 2118 and is made in heavier thicknesses.

Grade	Thick. Inches	Width Inches	Length Inches	Approx. Wt. Lbs. Per Sheet	Price Per Sq. Ft.
1638	1/8	42	48	8.0	$0.12
1638	1/4	42	48	14.5	0.12
1638	1/2	42	48	29.8	0.12
1638	3/4	42	48	42.9	0.12

Grade 2118—A flexible, high-grade commercial asbestos paper for general use.

Grade	Thick. Inches	Width Inches	Length Yards	Approx. Wt. Lbs. Per 25-Yd. Roll	Price Per Lb.
2118	.010	36	25 and 50	6.7	$0.17
2118	.015	36	25 and 50	13.2	0.15
2118	.025	36	25 and 50	23.8	0.14
2118	1/16	36	†	100*	0.11

†Approx. 40 yards only. *Weight per 40 yards.

Grade 4262—A special non-ferrous type high-grade asbestos paper of uniform quality. It is used for field insulation.

Grade	Thick. Inches	Width Inches	Length Yards	Approx. Wt. Lbs. Per 25-Yd. Roll	Price Per Lb.
4262	.007	36	25 and 50	5.8	$0.63
4262	.010	36	25 and 50	8.5	0.63

UNTREATED ASBESTOS FABRIC—STRAIGHT

Grade 2060—A good grade of closely-woven asbestos fabric of uniform quality containing no more than 20% cotton. It is used for field coils and railway motor armature hoods.

Grade 4369—Similar to Grade 2060, except contains less cotton.

Grade	Thick. Inches	Size Inches	Approx. Wt. Lbs. Per Sq. Yd.	Price Per Lb.
2060	.050	36x36 or rolls	1.45	$1.40
4369	.035	36x36 or rolls	1.05	2.28

UNTREATED COTTON TAPES—STAY BINDING

Grade 7560–1—(Unbleached—White). A fine-weave cotton with a smooth, glossy surface free from excessive fiber. It is used for binding strands, conductors and coils.

Grade 7560–2—(Unbleached—White). The same as Grade 7560–1 except a higher thread count which gives it higher tensile strength.

Grade 7560–3—(Unbleached—White). A herringbone-weave surgical tape for heavy binding purposes.

36 Yards Per Roll

Grade	Thick. Inches	Price Per Roll Width Inches ½	¾	1	1¼	1½
7560–1	.0053	$0.17	$0.215	....	$0.275	$0.475
†7560–1	.0055	....	0.205	....	....	....
†7560–1	.007	....	....	....	....	....
7560–1	.007	0.145	0.17	$0.212	....	0.297
7560–2	.007	0.175	0.195	0.24	....	....
7560–1	.011	....	0.35	0.387	0.462	0.475
7560–3	.020	0.287	0.387	0.43	0.587	0.637

†Red color. (Other sizes than those listed will be furnished on request.)

WESTINGHOUSE INSULATING MATERIALS

UNTREATED ASBESTOS TAPES

Grade 1598—A high-grade asbestos tape containing about 14% cotton. It is used for binding high temperature coils and for other applications where high temperatures are encountered.

Grade	Thick. Inches	Width Inches	Yards Per Roll	Approx. Wt. Per Roll	Price Per Lb.
1598	.010	½	32	3.5 oz.	**$4.60**
1598	.010	¾	32	4.6 oz.	**3.90**
1598	.010	1	36	7.0 oz.	**3.10**
1598	.015	½	22	4.0 oz.	**3.00**
1598	.015	¾	22	5.4 oz.	**2.80**
1598	.015	1	36	10.0 oz.	**2.60**
1598	.015	1¼	36	14.0 oz.	**2.35**
1598	.025	¾	36	1.0 lb.	**2.40**
1598	.025	1	36	1.4 lb.	**2.10**
1598	.025	1⅛	36	1.7 lb.	**2.05**
1598	.025	1¼	36	2.0 lb.	**2.00**
1598	.025	1½	36	2.25 lb.	**1.95**

UNTREATED GLASWEVE TAPE

(Continuous Filament Type ECC-11A)

Grade 7825-2—An inorganic insulating material composed entirely of continuous Glasweve fibers. It has very high tensile strength when cold and shows very little loss in strength after heating to high temperatures for long periods. Its resistance to impact and abrasion, as well as dielectric strength, is much higher than the ordinary untreated tapes. 36 yards per roll.

Grade	Width Inches	Price Per Roll Thickness—Inches .003	.005	.007	.010	.015
7825–2	⅜	**$0.5225**	**$2.26**	**$2.36**	**$2.49**	**$3.00**
7825–2	½	**.62**	**2.57**	**2.80**	**3.00**	**3.94**
7825–2	¾	**.8075**	**3.41**	**3.72**	**4.19**	**5.48**
7825–2	1	**1.00**	**4.15**	**4.62**	**5.40**	**7.00**
7825–2	1¼	**1.1825**	**4.95**	**5.51**	**6.62**	**8.72**
7825–2	1½	**1.38**	**5.74**	**6.45**	**7.88**	**10.48**

Glasweve tape on ⅜ inch I.D. cores. The outside diameter of rolls for .003 inch thickness is 2¼ inches; for .005 inch thickness is 3 inches; for .007 inch thickness, 3½ inches; for .010 inch thickness, 4½ inches; and for .015 inch thickness, 5 inches.

UNTREATED SLEEVINGS

Grade 1579—Untreated White Cotton Sleeving. A high-grade cotton sleeving with a medium wall thickness for insulating coil leads.

Grade	I. D. Inches	Largest Dia. Suitable for	Will Increase Dia., Ins.	Approx. Yards Per Reel	Price Per Lb.
1579	.045	.054	.015	550	**$1.20**
1579	.064	.073	.015	420	**1.20**
1579	.081	.091	.020	320	**1.20**
1579	.100	.112	.020	150	**1.20**
1579	.125	.130	.020	......	**1.20**
1579	.162	.178	.020	250	**1.20**
1579	.204	.222	.035	150	**1.20**
1579	.258	.276	.035	120	**1.20**
1579	⅜	⅜	.035	70	**1.20**
1579	7/16	7/16	.035	60	**1.20**
1579	⅝	⅝	.035	41	**1.20**
1579	¾	13/16	.035	42	**1.20**
1579	1	1	.035	28	**1.20**
1579	1¼	1¼	.035	25	**1.20**

Grade 1952-1—Untreated Asbestos Sleeving. A coarse, heavy-walled asbestos sleeving. Wall approximately 1/32-inch thick.

Grade 1952-2—Thinner wall than Grade 1952-1.

Grade	I.D. Inches	Will Increase Dia., Inches	Approx. Yards Per Reel	Approx. Wt. Lbs. Per Reel	Price Per Lb.
1952–1	5/32	1/16	300	5	**$3.55**
1952–2	⅛	.055	**500**	**5**	**8.10**

WESTINGHOUSE INSULATING MATERIALS

UNTREATED SLEEVINGS

Grade 7842-1 — Untreated Glasweve Sleeving. Composed of continuous filament Glasweve fibers for high temperature applications.

Grade	I.D. Inches	Will Increase Dia., Inches	Yards Per Reel	Wt. Lbs. Per Reel	Price Per Linear Yd.
7842–1	1/16	.018	100	.45	**$1.52**
7842–1	⅛	.018	100	1.05	**3.05**
7842–1	3/16	.018	100	1.20	**3.71**
7842–1	¼	.018	100	1.54	**4.73**
7842–1	5/16	.018	100	1.92	**5.81**
7842–1	⅜	.018	100	2.28	**6.97**
7842–1	½	.018	100	3.12	**9.74**

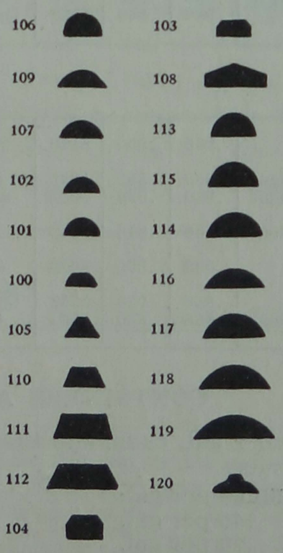
Treated and dyed sleeving can be supplied at slightly higher prices. Prices on request.

CORDAGE

Grade	Dia. In.	Description	Approx. Lbs. Per Reel	Approx. Yds. Per Reel	Price Per Lb.
1828	**.028**	Flax twine (4 ply) for tying leads......	1	1100	**$1.45**
1832	1/16	Cable laid cotton twine for tying leads and as a filler in certain coils	½	150	**.70**
1832	3/32		½	63	**.80**
2444	**.042**	Cotton twine (10 ply) for general use	1	600	**.64**
2973	**.05**	Hemp twine (4 ply)	1	310	**.80**
3306	**.015**	Linen thread (2 ply)	1	4000	**2.60**
3411	**.027**	Flax thread (1 strand) for coil winding	1	1350	**1.65**
3500	**.135**	Wax end (8 strand)	25	1625	**1.25**
3995	1/16	Hemp torpedo twine (6 ply)	25	3700	**.55**
3995	3/32	Hemp torpedo twine (7 ply)	25	2500	**.55**
3995	⅛	Hemp torpedo twine (7 ply)	25	2100	**.55**
5147	**.035**	Flax twine (6 ply)..	1	800	**2.00**
7116	**.135**	Treated Flax twine	5	375	**1.45**
2310	1/16	Asbestos Yarn..........	5	1000	**.65**

HARD MAPLE ARMATURE WEDGES

Armature wedges made from straight grained, hard, well seasoned maple wood.



Grade	Width Inches	Depth Inches	Price Per M Ft.
106	3/16	⅛	**$1.96**
109	¼	3/32	**2.33**
107	7/32	3/32	**1.96**
102	3/16	5/64	**1.88**
101	3/16	3/32	**1.88**
100	5/32	5/64	**1.65**
105	3/16	7/64	**1.96**
110	7/32	7/64	**2.36**
111	5/16	⅛	**2.70**
112	⅜	⅛	**2.93**
104	3/16	⅛	**1.96**
103	3/16	3/32	**1.96**
108	5/16	1/16	**2.54**
113	7/32	⅛	**2.10**
115	¼	⅛	**2.48**
114	9/32	⅛	**2.48**
116	9/32	3/32	**2.48**
117	5/16	⅛	**2.55**
118	⅜	⅛	**2.77**
119	7/16	⅛	**3.00**
120	7/32	3/32	**2.33**

Armature wedges are furnished in lengths of approximately 30 inches.

Minimum quantity for an order of any size is 100 feet.

WESTINGHOUSE INSULATING MATERIALS

AIR DRYING VARNISHES

Black

Grade 1133–2 (Spirit Type)—Recommended as oil proof coating for armatures and general purpose finishing of metal and wood. Quick drying, oil proof and acid resisting.

Grade 1800—Recommended as protective coating for metal surfaces—such as railway motor frames, structural steel, etc.—against moisture and salt water, acid and alkali fumes. Protection from corrosion, is weather resistant.

Grade 2497—Recommended for large armatures, field and stator coils. For general repair work where low cost, quick drying is essential and oil resistance is not important.

Grade 3109—Recommended for armatures, field coils and for general repair work where oil-proofness is not important.

Grade 7260—Recommended for treating coils, wound apparatus, etc., where baking facilities are not available. Quick drying, glossy, flexible finish.

Grade 7809—Recommended for general purpose sticking where cementing action is needed.

Clear

Grade 1103—Recommended for general purpose finishing and for coating asbestos and papers used as bonding medium between layers of coils. Also, for automotive armatures where quick drying is necessary. Oil proof and acid resisting. High dielectric strength.

Grade 3395—Recommended for general repair work on radio coils, armatures, coils, solenoids and for moisture proofing paper, fullerboard and asbestos. Long life under heat; Quick drying, acid and alkali resistant.

Grade 6852—Recommended for weather resisting finish on wood insulators and fiber fuse tubes. Exceptionally long life under heat, and is moisture resistant.

Grade 7623—Recommended for condenser bushings in connection with 7399-1 compound.

Grade 7805 — Recommended for transformer cases, crank cases, etc., where oil-resistance is important.

Grade 7806—Recommended for cementing varnished cloth, paper, mica wrappers, etc., to coils. Also for sticking asbestos to metal parts. Quick setting, good adhesion.

Grade 8107—Recommended for outdoor applications where only varnish is to be used or as a vehicle for aluminum or other paints for outdoor use. Moisture proof, oil proof, long life under heat, resists weather, acid and alkali.

Grade	Dielectric Strength V/M		Heat Endurance	Specific Gravity		Thinner	Drying Time ASTM Method	Resistance to				Price Per Gal. Container†		
	Dry	Wet		As Shipped	For Use			Acid	Alkali	Moisture	Oil	1 gal.	5 gal.	55 gal.
Black														
1133-2 (Spirit)	Fair	Good	Fair	.915	.915	8110	30 min.	Excellent	Fair	Good	Excellent	**$2.05**	**$2.05**	**$1.44**
1800	1800	900	Excellent	.860	.850	1609	8-10 hr.	Excellent	Fair	Excellent	Fair	**1.30**	**1.30**	**.77**
2497	2100	1400	Good	.855	.840	1609	1-2 hr.	Excellent	Fair	Excellent	Good	**1.05**	**1.05**	**.54**
3109	1800	500	Fair	.860	.850	1609	2-4 hr.	Excellent	Fair	Good	Fair	**1.25**	**1.25**	**.72**
7260	1750	500	Excellent	.865	.845	1609	4-6 hr.	Good	Fair	Good	Excellent	**1.90**	**1.90**	**1.31**
7809	-------	-------	--------------	.960	.960	5052	Quick set	Good	Good	Good	Good	**1.95**	**1.95**	**1.35**
Clear														
1103 (Spirit)	Fair	Good	Fair	.900	.900	8110	30 min.	Good	Fair	Fair	Excellent	**2.15**	**2.15**	**1.53**
3395	1750	650	Excellent	.860	.850	1609	4-6 hr.	Good	Good	Excellent	Excellent	**1.65**	**1.65**	**1.08**
6852 (Synthetic)	1700	650	Excellent	.920	.900	5052	8-12 hr.	Fair	Fair	Good	Excellent	**1.90**	**1.90**	**1.31**
7623 (Synthetic)	1700	750	Excellent	.930	.915	5052	24 hr.	Fair	Fair	Excellent	Excellent	**5.95**	**5.95**	**4.95**
7805 (Synthetic)	1600	500	Good	.900	.890	5052	6-8 hr.	Fair	Fair	Good	Excellent	**2.65**	**2.65**	**1.98**
7806	-------	-------	--------------	.960	.960	5052	Quick set	Good	Good	Good	Good	**1.90**	**1.90**	**1.31**
8107	1750	750	Excellent	.865	.850	1609	4-6 hr.	Good	Fair	Excellent	Excellent	**1.95**	**1.95**	**1.35**

CONTAINERS AND THEIR PRICES†

For containers smaller than 1 gal. cans, add the following to the 1 gal. can price.

½ gal. can	**$0.20** per gal.
1 qt. can	**.40** per gal.
1 pt. can	**.70** per gal.
½ pt. can	**.90** per gal.

Unless specified otherwise, varnishes, paints, lacquers and enamels, in 55 gal. lots are shipped in returnable drums and billed at **$10.00** each net. Credit will be allowed on these drums upon their return in good condition, F.O.B., E. Pittsburgh, or Manor, Pa., not later than 60 days after shipment of material.

If specified, however, shipment will be in a non-returnable drum for which a charge of **$3.25** net will apply.

This information applies to listings of varnishes, thinners, enamels, paints and lacquers.

WESTINGHOUSE INSULATING MATERIALS

BAKING VARNISHES

Black

Grade 1781—Recommended for general use where flexibility and moisture resistance are required and where coils are subjected to severe strains during the winding operation.

Grade 1836—Recommended for sheet-steel laminations. Has other applications where high grade core plate varnish is needed. Has fair oil resistance, excellent acid resistance and high dielectric strength.

Grade 1955—Recommended for general finishing and insulating such as motor frames, brackets, small motors, etc. Superior finishing qualities, very good acid resistance.

Grade 2227—Recommended for mill and mine motors, armature coils, railway armatures, farm lighting equipment, etc. Superior oil resistance, excellent filling qualities.

Grade 7180—Recommended for insulation where extreme moisture and acid resistance are required. Long life under heat, very good moisture and acid resistance.

Grade 8108—Recommended for repair shops where low cost and quick baking are required with absolute dependability. Excellent acid resistance.

Grade 8109—Recommended for treating mill and mine coils and for stators where high moisture resistance is needed. Excellent resistance to sulphur water, good finish for coils. High moisture resistance.

Clear

Grade 744—Recommended for high-speed armatures, revolving field coils, drill armatures, welding transformers, etc. Resists acid, alkali, moisture, and oil. Long life under heat; high dielectric strength.

Grade 2370—Recommended for treating coils and large armatures where extreme flexibility is not important. Resists oil, acid, and moisture.

Grade 6853—Recommended for armatures, stator coils where long life and flexibility are required. Oil resistant; has long life under heat.

Grade 7826—Recommended for general insulation. Excellent resistance to acid, alkali, oil and moisture; high dielectric strength.

Grade 8105—Recommended for transformer coils, automotive armatures where a heavy coating and thorough drying are essential.

Grade 8106—(Alkyd Synthetic)—Recommended for double commutator armatures and where bonding qualities and oil resistance are needed. Quick baking, long life under heat, and excellent oil resistance.

Grade	Dielectric Strength V/M		Heat Endurance	Specific Gravity		Thinner	Baking Time	Resistance to				Price Per Gal. Containers*		
	Dry	Wet		As Ship'd	For Use			Acids	Alkali	Moisture	Oil	1 Gal.	5 Gal.	55 Gal.
							Black							
1781	2000	1600	Excellent	.860	.850	1609	8-10 hr. 110-120° C.	Good	Fair	Excellent	Good	**$1.35**	**$1.35**	**$0.81**
1836	2000	850	Good	.850	.835	1609	45 Sec. at 400-450° C.	Excellent	Fair	Good	Fair	**1.15**	**1.15**	**.63**
1955	1900	900	Fair	.855	.845	1609	6-8 hr. 110-120° C.	Very Good	Fair	Good	Excellent	**1.30**	**1.30**	**.77**
2227	1850	900	Good	.870	.850	1609	8-10 hr. 110-120° C.	Good	Fair	Good	Excellent	**1.45**	**1.45**	**.90**
7180	1800	1200	Excellent	.865	.850	1609	8-10 hr. 110-120° C.	Very Good	Fair	Very Good	Good	**1.45**	**1.45**	**.90**
8108	1900	800	Good	.855	.840	1609	4-6 hr. 110-120° C.	Excellent	Fair	Good	Fair	**1.15**	**1.15**	**.63**
8109	2000	1600	Good	.865	.850	1609	6-8 hr. 120-130° C.	Good	Good	Excellent	Good	**1.45**	**1.45**	**.90**
							Clear							
744 (Synthetic)	2000	1000	Excellent	1.01	.990	8139	8-12 hr. 110-120° C.	Excellent	Excellent	Excellent	Excellent	**2.70**	**2.70**	**2.03**
2370	1800	650	Good	.865	.850	1609	8-16 hr. 110-120° C.	Good	Fair	Good	Excellent	**1.40**	**1.40**	**.86**
6853	1750	500	Excellent	.865	.850	1609	8-12 hr. 110-120° C.	Fair	Fair	Good	Excellent	**1.40**	**1.40**	**.86**
7826 (Synthetic)	2000	800	Very Good	.990	.985	5052	8-12 hr. 110-120° C	Excellent	Excellent	Excellent	Excellent	**2.85**	**2.85**	**2.16**
8105	1800	650	Fair	.870	.850	1609	6-8 hr. 110-120° C.	Fair	Fair	Good	Excellent	**1.40**	**1.40**	**.86**
8106 (Synthetic)	1500	450	Excellent	.900	.890	5052	4-6 hr. 110-120° C.	Fair	Fair	Good	Excellent	**2.35**	**2.35**	**1.71**

THINNERS

Grade	Color	Specific Gravity	Kind	Applications	Price Per Gal. Containers*		
					1 Gal.	5 Gal.	55 Gal.
1130	Clear	.820- .825	Alcohol and Shellac	For spirit varnishes	**$1.25**	**$1.25**	**$0.72**
1609	Clear	.760- .770	Benzine	For standard clear and black oil varnishes	**.65**	**.65**	**.18**
2525	Clear	.840- .845	Alcohol and Petroleum	For lacquer	**1.40**	**1.40**	**.86**
2671	Amber	....	Oils	Heavy liquid for maintaining uniform dropping point for No. 1003 compound	**1.35**	**1.35**	**.81**
2957	Clear	1.38 -1.40	Sodium Silicate	For No. 646 cement	**2.65**	**2.65**	**1.98**
5052	Clear	.855- .860	Toluol	For synthetic varnishes and enamels	**1.55**	**1.55**	**.99**
8110	Clear	.810- .815	Alcohol	For spiitr varnishes or No. 672 enamel	**1.25**	**1.25**	**.72**
8139	Clear	.835- .840	Alcohol and Benzol	For synthetic varnish	**1.05**	**1.05**	**.54**

*For information on containers and their prices, refer to preceding page.

WESTINGHOUSE INSULATING MATERIALS

ENAMELS

Grade	Color	Drying Time	Thinner	Properties	Remarks	Suggested Applications	Price Per Gal. Containers§		
							1 Gal.	5 Gal.	55 Gal.
672†	Red	Air-dry 2- hr.	8110	Good arc, flash and oil resistant.	Hard, smooth glossy finish.	Mica V-ring bands, armature bands, etc.	$3.65	$3.65	$2.46
1732 (Synthetic)	Black	Dust-free 2-hr. Hard 4-6 hr.	5052	Oil proof, acid and alkali resistant.	Hard, smooth glossy finish.	Finishing.	3.15	3.15	2.38
1737	Black	Air-dry 2-4 hr.	1609	Oil proof.	Flat, durable machine tool enamel.	For finishing castings and backs of switchboards.	2.40	2.40	1.72
1738	Light Gray	Air-dry 12-14 hr.	1609	Developed to stand hot mineral oils.	Durable machine tool finish.	Paint oil wells and housings for bearings.	2.40	2.40	1.72
4374	Gray	Air-dry ½-1 hr.	2525	Excellent water and oil resistant.	National machine tool standard.	Motor and control apparatus.	3.75	3.75	2.90
6931 (Synthetic)	Gray	8 hrs.	5052	Good insulation	Color similar to galvanized hardware.	Outdoor Service on insulators.	4.65	4.65	3.65
7340 (Synthetic)	Red	Dust-free 1 hr. Hard 4-6 hr.	5052	Extreme oil, arc, and weather resistant.	Hard, smooth glossy finish.	Mica v-ring bands, armature bands, collector bushings, etc.	3.65	3.65	2.46
7801 (Synthetic)	Aluminum	Dust-free 1 hr. Hard 4-6 hr.	5052	Long life, oil-proof, acid and alkali resistant.	Bright, silvery finish.	Finishing.	3.15	3.15	2.38
7802 (Synthetic)	Dark Gray	Dust-free 1 hr. Hard 4-6 hr.	5052	Oilproof, acid and alkali resistant.	Machine tool gray.	Motors and generators, machine tools.	3.15	3.15	2.38
7803 (Synthetic)	Blue	Dust-free 1 hr. Hard 4-6 hr.	5052	Oilproof, acid and alkali resistant.	Hard glossy finish.	Finishing.	3.40	3.40	2.60
7804 (Synthetic)	White	Dust-free 1 hr. Hard 4-6 hr.	5052	Oilproof, acid and alkali resistant.	Will not discolor.	Finishing.	3.15	3.15	2.38

†Specific gravity is approximately 1.15.

PAINTS

Grade	Color	Drying Time	Thinner	Properties	Remarks	Suggested Applications	Price Per Gal. Containers§		
							1 Gal.	5 Gal.	55 Gal.
2690	Gray-blue	Dust-free 8-hr. Hard in 24 hr.	1609	Hard, glossy finish. Will not crack, shrink or change color.	National machine tool standard.	Finishing paint with 6043, 6044 which gives excellent outdoor finish.	$2.75	$2.75	$2.12
6043	Red	Dust-free 5-7 hr. Hard 12 hr.	Turpentine	Will not shrink or crack.	Lead chromate base.	Priming coat on metal surfaces.	3.15	3.15	2.48
6044	Light Gray	Dust-free 8-hr. Hard 12-hr.	Turpentine	Will not shrink or crack.	Lead and zinc oxide base.	Second coat over 6043 priming paint.	2.55	2.55	1.93
6117	Black	Dust-free 8-hr. Hard 18-hr.	Turpentine	Hard, glossy finish.	Durable outdoor finish.	Painting steel. Applied over a prime coat.	5.55	5.55	4.69

LACQUERS

Grade	Color	Drying Time	Thinner	Features	Remarks	Suggested Applications	Price Per Gal. Containers§		
							1 Gal.	5 Gal.	55 Gal.
1763	Clear	Air-dry 1-hr.	2525	High oil and moisture resistance.	Protects metal indoors.	Excellent coating to prevent discoloration.	$3.40	$3.40	$2.77
6183	Black	Air-dry 1-hr.	2525	Good insulation. Water and oil resistance.	Hard, semi-gloss finish. For spraying consistency use 2 parts to 1 part of No. 2525.	Finishing — particularly slate.	4.20	4.20	3.53
6803	Black	Air-dry ½-hr.	2525	Quick drying.	Flat appearance of slate.	Finishing molded asbestos composition.	6.00	6.00	5.22

§For information on containers and their prices, refer to a preceding page.

WESTINGHOUSE INSULATING MATERIALS

CEMENTS

Grade	Color	Shrinkage	Specific Gravity	Resistance To		Characteristics	Sets by	Suggested Applications	Price
				Moisture	Oil				
†605 Powder	Tan	....	2.0	Good	Good	Hard.	Baking	Filling back of Commutators.	Powder only $.15/lb.
611	Black	10%	1.7	Excellent	Non-oil-proof	Tough asphaltic type. Approx. 14 lbs. per gallon.	Cooling	Filling backs of slate panels, etc.	1 lb. cake .17/lb. 10 lb. cake .10/lb. Bulk 20-25 lb. cakes .08/lb.
618	Black	10%	1.7	Good	Excellent	Hard, brittle. Approx. 14 lbs. per gallon.	Cooling	Sealing bushings in transformers.	1 lb. cake .15/lb. 10 lb. cake .08/lb. Bulk 20-25 lb. cakes .08/lb.
644	Black	....	....	Excellent	Non-oil-proof	Liquid. Thin with 1609.	Air-dry	Sticking tape and wrappers to coils.	1 pt. can .55/can 1 qt. can .75/can 1 gal. can 2.15/can
646	White	....	....	Good	Good	Putty-like. Apply cold. Thin with No. 2957.	Air-dry 24-hr. Bake 1-2 hr. 90° C.	Repairing arc deflectors, chutes, porcelain, etc.	1 pt. can .40/can 1 qt. can .56/can 1 gal. can 1.60/can
*647 Powder	Gray	....	....	Excellent	Excellent	Thin with No. 647 Liquid.	Baking	Filling cement. Coating resistance tubes.	.10/lb.
647 Liquid	Gray	....	....	....	....	....			1 pt. can .22/can 1 qt. can .32/can 1 gal. can .90/can
648	Black	....	....	Good	Non-oil-proof	Liquid. Very plastic and sticky. Thin with No. 1130. Apply cold.	Air-dry 3-hr.	Cementing asbestos or felt to iron.	1 pt. can .70/can 1 qt. can 1.00/can 1 gal. can 2.75/can
‡650 Powder	....	....	2.0	Excellent	Excellent	Hard. Approx. 16 lbs. per gallon.	Air-dry 24 hr. or bake at 50° C.	Filling pits in commutators.	½ lb. pkg. .40/pkg. 1 lb. pkg. .60/pkg. 5 lb. pkg. 1.20/pkg.
664	Brown	....	....	....	....	Liquid. Apply hot.	Air-dry	Cementing felt to metal.	1 pt. can .90/can 1 qt. can 1.25/can 1 gal. can 3.60/can
677	Black	....	1.8	....	Good	Putty-like. Apply with knife.	Bake 12-14 hr. 115° C.	Filling end windings, joint and steps in field coils.	1 pt. can .50/can 1 qt. can .72/can 1 gal. can 2.05/can
684	Red	....	1.8	....	....	Putty-like. Apply with knife. Thin with No. 1103.	Bake 12 hr. 110-115° C.	Filling around turbo coils.	1 pt. can .98/can 1 qt. can 1.35/can 1 gal. can 3.90/can
5449 ¶Powder	White	....	....	....	....	Casein glue.	Air-dry 4-6 hr.	Gluing wood to wood or cork to aluminum.	.55/lb.
6767	Tan	....	1.26	....	....	Liquid. Apply cold.	Air-dry	General gluing where moisture is not encountered.	1 pt. can .30/can 1 qt. can .45/can 1 gal. can 1.25/can 5 gal. can 5.50/can

†To make **No. 605** cement, mix 1½ lbs. of No. 605 powder to ½ pint of No. 1103 varnish. Mix to a putty-like consistency and use within a few hours after mixing. One gallon of mixed material requires 9 pounds of No. 605 powder and 3 pints of No. 1103 varnish.

*To make **No. 647** cement, mix 3 pounds of No. 647 powder to 1 quart of No. 647 liquid. Mix to proper consistency for brushing and use immediately. One gallon of mixed material requires 12 pounds of powder and 2 quarts of liquid.

‡This material consists of powder and liquid put up in one package to be mixed to a putty-like consistency and used immediately. Two 5-pound packages make approximately 1 gallon of cement.

¶Dissolve in water and apply with brush. Two and one-half pounds of powder mixed to consistency for brushing equals approximately one gallon.

LUBRICATING OILS

Grade	Description	Price	
		Per ⅛ PT.	Per Gal.
2505	HL oil for air and switch cylinders	....	**$0.76**
2661	Dash pot oil (above 32° F.)	**$0.10**	**1.32**
3179	Dash pot oil (below 32° F.)	**.10**	**.90**

WESTINGHOUSE INSULATING MATERIALS

INSULATING COMPOUNDS

Grade and Color	Shrinkage	Melting Point (B & R °C.)	Pouring Temp. °C.	Specific Gravity	Resistance To		Characteristics	Drying or Setting Time	Suggested Applications	Approx. Lb. Per Gal.	Price	
					Moisture	Oil					1 Gal. Cans	Lb.
1001 Black	15%	80-88	150	1.0	Excellent	Non-oil-proof	Tough asphaltic type	Sets upon cooling.	Filling where oil-proof is not required. Coil impregnating.	8	**$0.85**	**$0.06/lb.** 375-400 lb. drum
1002 Black	15%	110-118	175	1.02	Excellent	Non-oil-proof	Tough asphaltic type. Harder than No. 1001.	Sets upon cooling	Filling where high drop point and non-oil-proof is required. Also to adjust melting point of No. 1001 for coil impregnating.	8	**.85**	**.06/lb.** 375-400 lb. drum
1003 Dark Amber	15%	80-85	150	1.0	Excellent	Excellent	Drains well from apparatus	Sets upon cooling.	Impregnating transformers, etc., to operate under oil.	8	**3.25**	**.34/lb.** 375-400 lb. drum
1004† Brown	None	Paste	Use at 70° F.	1.5	Good	Good	Good insulating filling compound.	Bake 12 hr. at 145° C.	Brush on generator field coils.	12	**2.55**	-------
1772 Dark Gray	-------	-------	-------	-------	Good	Good	High mechanical strength	Air-dry 10-12 hr.	Filling blow holes, etc., in iron castings.	-----	-------	**7.25** for 25 lb. can
1845 Amber	Slight	Paste	100	-------	Good	-------	Petrolatum — similar in form to vaseline	-------	Filling compartments and potheads. Protective coating for metallic parts.	7	**1.20**	-------
1932 Black	None	-------	-------	-------	Good	Good	Hard. Will not crack.	Air-dry 6-8 hr.	Filling and smoothing castings and welds before painting.	-----	-------	**3.40** for 25 lb. can
2652 Dark Brown	5%	70	100	-------	Good	Non-oil-proof	Wax-like. Easy to remove.	Sets upon cooling	Filling junction boxes and jumper heads, cable joints.	7	**1.75**	-------
3172 Black	15%	43-47	110	.98	Good	Non-oil-proof	Tough asphaltic type	Sets upon cooling.	Filling transformer and condenser bushings. Mix with No. 1001 to adjust melting points.	8	**.85**	**.06/lb.** 375-400 lb. drum
3353 Black	15%	160	220-240	1.03	-------	Non-oil-proof	Tough asphaltic type	Sets upon cooling.	General filling and sealing.	8	**.85**	**.06/lb.** 375-400 lb. drum
7237 Black	5%	60-65	90-100	1.0	Good	Excellent	Flexible Pitch type.	Sets upon cooling.	Filling transformer outlet bushings.	9	**2.25**	-------
7399-1 Black	-------	50-60	125	1.06	Excellent	Non-oil-proof	Asphaltic type	Sets upon cooling.	Transformer bushing.	8	**2.40**	-------

Drums or cans in which compounds are shipped are non-returnable.

List Prices—5-gallon cans **$0.10** per gallon less than 1-gallon prices shown above.

†Do not store more than three months. Stir before using.

WESTINGHOUSE INSULATING MATERIALS

WEMCO-C INSULATING OIL

General—Wemco-C is a special grade of oil used for insulating and cooling oil-cooled apparatus including transformers, circuit-breakers, induction feeder regulators, etc.

Dielectric Strength—The most important property of insulating and cooling oil is high dielectric strength. Tests made in accordance with specification D-117 of the American Society for Testing Materials, place the dielectric strength of Wemco-C oil at more than 22,000 volts.

Viscosity—The viscosity is of great importance in transformers, since one of the main functions of the oil is to cool the apparatus which it insulates. This requirement is fully met in Wemco-C oil which has a viscosity of 57 seconds maximum (average 52 to 55) at 40° C. (140° F.) and 280 seconds at 0° C. (32° F.) in the Sayboit viscosimeter. This oil is well adapted for use in outdoor circuit-breakers and transformers.

Moisture—The dielectric strength of oil is seriously affected by even a trace of water. Wemco-C oil is produced under conditions which insure its cleanliness and dryness in the sealed container. It is so refined as to have good demulsibility (property of quickly separating from water).

Deposit—Transformer oil should be as free as possible from any tendency to produce a deposit under severe conditions. A deposit is objectionable primarily because it clings to the coil windings and fills the oil ventilating ducts, seriously affecting the cooling of the apparatus. Wemco-C oil is practically free from deposit and no difficulty will be experienced under normal operating conditions.

Color—It is important that insulating oil be light in color so the apparatus may be inspected when under oil. This applies to transformer terminal boards below the oil level, to floor-mounted circuit-breakers where a periscope is employed in adjusting and repairing contacts under the oil, and in many other applications.

Wemco-C oil is very light in color.

Weight of Oil and Containers

The net weight of Wemco-C oil is 7.5 lbs. per gallon.

The approximate shipping weights of cans containing oil are as follows:

1-gallon container	10 lbs.
1½-gallon container	15 lbs.
2-gallon container	18 lbs.
3-gallon container	27 lbs.
5-gallon container	45 lbs.

The approximate weight of empty drums:

30-gallon drum	43 lbs.
55-gallon drum	85 lbs.

Full credit will be allowed for 30-gallon half-drums, and 55-gallon drums when returned in first-class condition.

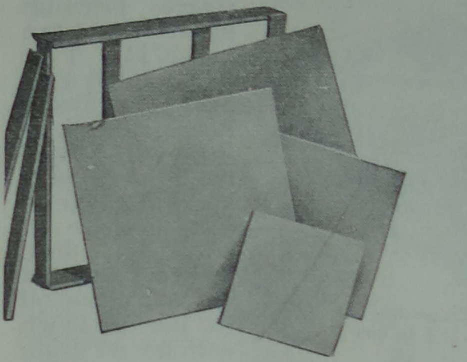
Prices on application.

ASBESTOS EBONY AND TRANSITE ASBESTOS WOOD

TRANSITE ASBESTOS WOOD

Transite Asbestos Wood

Arc deflectors for controllers, and for general construction where fireproof material of the highest quality is desired.



Transite Asbestos Wood is a composition material of high mechanical strength, being fireproof, and of fair dielectric strength. It has a wide variety of uses—some of the most important applications being as follows: Cell doors for switch compartments, pull boxes, moving picture booths, tank linings, laboratory cabinets and trim, bank vault linings, shells for storage battery purposes, barriers for electrical purposes, bus bar supports, cable clamps.

In appearance, it is grayish in color, and can be painted, enameled, stained or varnished. Its mechanical strength increases with age and for central station uses its application is practically unlimited.

Size sheets 42 x 48 and 42 x 96 inches.

Thick. In.	Uncrated Wt. Lbs. Per Sq. Ft	Price Per Sq. Ft.	Thick. In.	Uncrated Wt. Lbs. Per Sq. Ft.	Price Per Sq. Ft.
⅛*	1.7	**$0.15**	1¼	13.0	**$1.50**
3/16	2.1	**.225**	1½	15.7	**1.80**
¼	2.8	**.30**	1¾	18.5	**2.10**
5/16	3.4	**.38**	2	21.0	**2.40**
⅜	4.0	**.45**	2½	26	**3.00**
½	5.3	**.60**	3	31	**3.60**
¾	7.6	**.90**	3½	36	**4.20**
1	10.1	**1.20**	4	42	**4.80**

*42 x 48 only.

ASBESTOS EBONY

Asbestos Ebony is rapidly displacing marble and slate for electrical purposes. It has a very high dielectric combined with great mechanical strength, is moisture and acid proof, does not warp, and is much lighter in weight than either slate or marble. Some of its chief uses are as follows: Switchboard panels, panel boards, bases for disconnecting switches, controller tops, wire cleats, switch boxes, laboratory table tops, third rail insulating blocks, mine locomotive reels.

The Company's engineers will gladly co-operate in the designing of special shapes and structures in either of the above materials, in order to meet your plans and specifications.

Note:—Prices on cut pieces quoted on request.

Asbestos Ebony

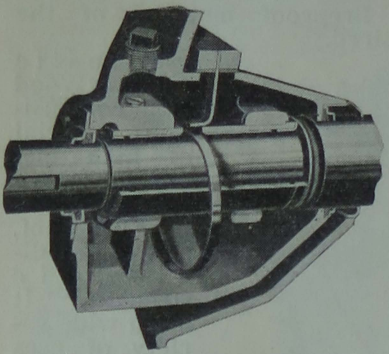
Size sheets, 36x48, 42x48 and 42x96 inches.

Thick. In.	Uncrated Wt. Lbs. Per Sq. Ft.	Price Per Sq. Ft.	Thick. In.	Uncrated Wt. Lbs. Per Sq. Ft.	Price Per Sq. Ft.
*⅛	1.50	**$0.90**	1	10.35	**$2.80**
*3/16	2.08	**1.20**	1¼	12.85	**3.10**
¼	2.75	**1.30**	1½	15.00	**3.65**
5/16	3.50	**1.45**	1¾	17.80	**3.95**
⅜	4.25	**1.60**	2	20.65	**5.50**
½	5.43	**1.90**	**2½	25.85	**7.75**
⅝	6.88	**2.35**	**3	31.0	**9.30**
¾	7.85	**2.50**	**3½	36.2	**10.85**
⅞	9.00	**2.65**	**4	41.4	**12.40**

*Only in 36x48-inch sheets.
**36x48-Inch and 42x48-Inch sheets.

WESTINGHOUSE SEALED-SLEEVE BEARINGS

Used on Types SK, CS, CW and CI Westinghouse Motors



Bearing Cross-Section Frames 254 to 609

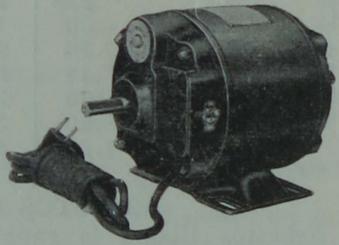
In thousands of plants, sealed-sleeve bearings prove they can take it. The Westinghouse Sealed - Sleeve Bearing makes its own ideal conditions — in any kind of service, because it seals the dust, grit or dirt out —seals clean oil in. Perfect lubrication—no drain plug—oil cannot seep from bottom. Exclusive Westinghouse air by-pass equalizes pressure inside and outside, preventing oil leakage by suction. Oil cannot get out to cause insulation breakdown. Westinghouse motors with sealed-sleeve bearings assure surprisingly low maintenance.

WESTINGHOUSE SINGLE-PHASE A-C. MOTORS

TYPE FHT SPLIT-PHASE—CORD AND SWITCH

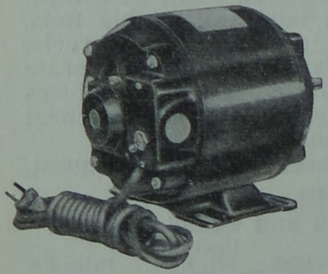
1725 Rpm.—110 Volts—60 Cycles
Frame No. 145

This high torque, ⅓-horsepower motor is ready to use. Equipped with high-grade permanently lubricated ball bearings, manual reset Thermoguard overload protection, "off-on" switch, double extended shaft ½-inch in diameter, 9-foot rubber-covered cord and plug.



Type FHT—⅓-Hp.

Price each **$14.30**



Type FHT—¼-Hp.

Ready to plug in and use, no wiring. A high-torque, Type FHT split-phase motor, ¼-horsepower—frame number 145. Operates at 1725 Rpm., 1-phase, 60 cycles, 110 volts. Equipped with diamond-bored babbitt-lined "no - bump" bearings, built-in "off-on" switch, and a 9-foot, rubber-covered cord and plug.

Price each **$8.00**

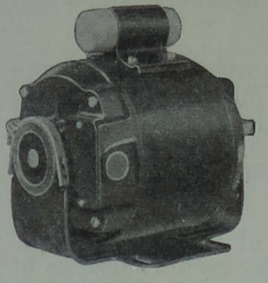
Note: This motor is also available in a ⅓-hp., frame style 145K. Otherwise, specifications are same as for the ¼-hp. motor.

Price each **$10.60**

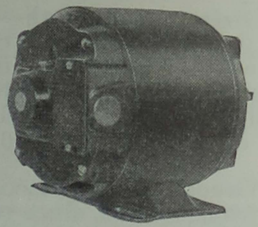
WESTINGHOUSE SINGLE-PHASE A-C. MOTORS

TYPE FJ CAPACITOR—TYPE FH SPLIT-PHASE

60 Cycles—110-220 Volts—Continuous Duty
40° Rise—Constant Speed



Type FJ Resilient Mounted Capacitor Motor with Thermoguard



Type FH Split-Phase Motor with Rigid Mounting

TYPE FJ

Type FJ motors are used for pumps, compressors, oil burners, stokers and similar jobs requiring substantial starting torques. High starting torque, low starting current, quiet in operation, high in efficiency, easily reversed. Thermoguard and resilient mounting optional.

Hp.	App. F.L. Rpm.	Frame	Price Each	Price Additions for		
				Thermoguard*	Resil. Mtg.	Pulley
			110 or 220 Volts			
1/6	1725	145	**$10.05**	**$0.95**	**$0.30**	**$0.90**
1/4	1725	145K	**11.30**	**.95**	**.30**	**.90**
1/4	1140	H145K	**23.25**	**.95**	**.30**	**.90**
			110/220 Volts—(Dual Voltage)			
1/3	1725	B145K	**$17.45**	**$1.20**	**$0.30**	**$0.90**
1/3	1140	186	**29.25**	**1.35**	**.90**	**2.00**
1/2	1725	186	**22.50**	**1.35**	**.90**	**2.00**
1/2	1140	H186	**36.00**	**1.35**	**.90**	**2.00**
3/4	1725	D186	**29.50**	**1.35**	**.90**	**2.00**

*Thermoguard addition for 1/6 and 1/4-hp. motors applies to 110 volts only.

TYPES FH AND FHT

Type FHT split-phase motors (High Torque Type) are for continuous and intermittent duty where operation is infrequent and starting current in excess of NEMA values is not objectionable. Starting torque 200%—high locked current. Ideal for washing machines, ironers, sump pumps and various home workshop machines. May cause light flicker on underwired or overloaded lighting circuits.

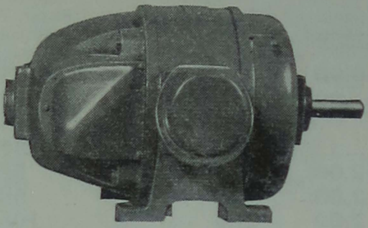
Type FH split-phase motors (General Purpose Type) are for applications up to ⅓-hp. where medium starting and breakdown torques are satisfactory. Low starting current minimizes light flicker, making this type suitable for frequent starting such as on oil burners, fans, blowers, office appliances and certain types of pumps and compressors. Built-in Thermoguard obtainable on ⅛-hp. motors and larger.

Hp.	App. F.L. Rpm.	Frame	Price Each		Add for	
			110 V.	220 V.	Resil. Mtg.	Thermoguard
			Type FHT—High Torque			
1/6	1725	145	**$6.65**	**$7.50**	**$0.30**	....
1/4	1725	145	**6.85**	**7.70**	**.30**	....
1/3	1725	145K	**9.45**	**10.30**	**.30**	....
			Type FH—General Purpose			
1/8	1725	145	**$8.00**	**$8.85**	**$0.30**	**$0.95**
1/8	1140	145	**12.30**	**13.15**	**.30**	**.95**
1/6	1725	145	**8.20**	**9.05**	**.30**	**.95**
1/6	1140	145K	**14.20**	**15.05**	**.30**	**.95**
1/4	1725	145K	**9.45**	**10.30**	**.30**	**.95**
1/4	1140	D145K	**18.50**	**19.35**	**.30**	**.95**
1/3	1725	145K	**13.85**	....	**.30**	**.95**

WESTINGHOUSE SINGLE-PHASE A-C. MOTORS

TYPES CR AND CU—REPULSION INDUCTION MOTORS

60 and 50 Cycles—110-220 Volts—Continuous Duty—40° Rise—Constant Speed



Type CR Single-Phase Repulsion-Start Induction Motor

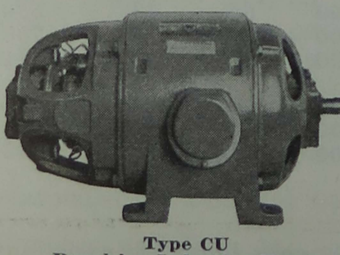
Types CR and CU repulsion start motors are suitable for applications requiring high breakaway torques such as plunger pumps, certain types of industrial compressors, machine tools and farm machinery. All ratings are dual voltage. Resilient mountings and built-in thermo-guard are not supplied on these types. Type CR motors start as repulsion motors and when they reach a predetermined speed, a centrifugal switch short-circuits the armature winding, and then they run as constant-speed induction motors. Type CU motors are of the repulsion-induction type. They have no short-circuiting device.

TYPES CR AND CU*

Hp.	App. F.L. Rpm.	Frame	Shaft Diam. In.	App. Shpg. Wt. Lbs. Motor Only	App. F.L. Amps. 110 Volts	MOTOR ONLY Dual Voltage 110 and 220V. Sleeve Bearing	MOTOR ONLY Dual Voltage 110 and 220V. Ball Bearing	Add for Base
				Type CR—60 Cycles†				
¾	1140	204	¾	90	12.8	**$49.**	**$53.**	**$6.**
1	1750	204	¾	90	15.0	**37.**	**41.**	**6.**
1	1160	224	1	132	18.0	**64.**	**68.**	**6.**
1½	3450	F204	¾	121	16.4	**51.**	**55.**	**6.**
1½	1750	224	1	132	19.8	**49.**	**53.**	**6.**
1½	1160	F225	1	182	28.2	**82.**	**86.**	**6.**
2	3450	224	1	132	24.0	**67.**	**71.**	**6.**
2	1750	225	1	154	26.2	**64.**	**68.**	**6.**
3	3450	F224	1	150	33.0	**89.**	**93.**	**6.**
3	1750	F225	1	182	39.2	**82.**	**86.**	**6.**
5	3450	F225	1	182	52.0	**144.**	**151.**	**6.**
				Type CU—60 Cycles†				
2	1160	254	1⅛	190	22.8	**120.**	**126.**	**6.**
3	1160	D254	1⅛	190	32.0	**145.**	**152.**	**6.**
5	1770	D254	1⅛	190	50.0	**120.**	**126.**	**6.**
5	1160	H284	1¼	263	54.0	**169.**	**177.**	**13.**
7½	1770	H284	1¼	263	72.0	**169.**	**177.**	**13.**

*To eliminate radio interference on Type CU motors, use Capacitor, Catalog Number 831754. Price, **$2.05** net.

†The 50-cycle, 40° C. continuous rated Type CR motors have the same frames and are priced the same as corresponding 60-cycle motors, but special windings are required. Speeds are approximately ⅚ of the 60-cycle speeds.

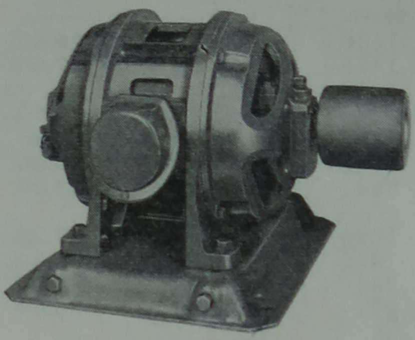


Type CU Repulsion-Induction Motor

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

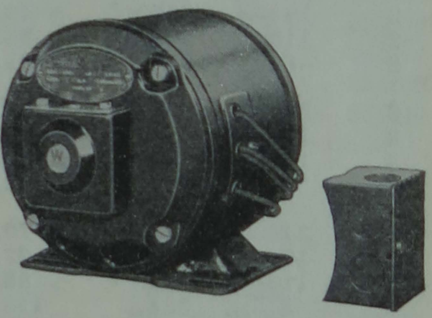
TYPE CS GENERAL-PURPOSE AND CLASS I SQUIRREL-CAGE MOTORS

¼ to 200 Hp. and Up—110, 220, 440 and 550 Volts, 2 and 3-Phase—2200 Volts, 3-Phase—25, 50 and 60 Cycles



Frame Series 254 to 445, Inclusive

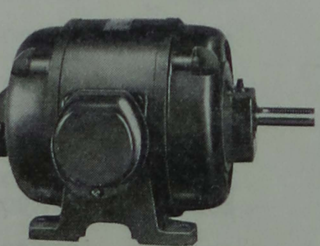
Westinghouse type CS motors are applicable for driving machines in practically every industry. They can be furnished in standard sizes for operation on circuits of any commercial voltage and frequency. The efficiency and power factor at full and partial loads are high. Liberal starting torques with minimum starting currents are available. These motors find extensive application on pumps, compressors, machine tools, ventilating fans, blowers, and in all other constant-speed services of a similar nature having normal starting conditions.



Frame Series 185 and Smaller

The balanced design and rugged construction insure efficient and dependable operation at all times.

Stators—Cast-iron construction, feet integral with frame. Sizes smaller than frame 254 have mold-wound coils. From 254 to 445, inclusive, the windings are inserted in partially-closed slots, and the design allows removal of wound-core as a unit. From 504 to 800-C, inclusive, they are especially designed for continuous, heavy service. Pulled-diamond coils in open slots are used. Larger frame sizes are made of one-piece cast-iron construction with transverse ribs which support the stator laminations. Form-wound coils are used.



Frame Series 204 to 225

Rotors—The rotor windings of the smaller sizes are soldered to the end rings. In medium size motors, they are die-cast, while in the larger, the copper rotor bars are brazed to the end rings. The shafts are liberally designed and made of special tough axle steel.

Brackets—Are of a unique design, allowing free circulation of cooling air, permanent alignment of the bearings and the application of covers over the openings to partially or totally enclose the motor.

WESTINGHOUSE POLYPHASE LINESTART INDUCTION MOTORS

TYPES FS AND CS GENERAL-PURPOSE OR CLASS I SQUIRREL-CAGE MOTORS

Normal Starting Torque—Low Starting Current—Constant Speed 40° C.
Continuous—60/50 Cycles—2 and 3-Phase—220, 440 and 550 Volts

Hp.	** Approx. F.L. Rpm.	Frame	PRICE MOTOR ONLY Sealed Sleeve Bearing	Ball Bearing	ADD FOR Rails	Pulley	Shaft Dimensions Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	Approx. F.L. Amp. Term. 3-Ph. 220 V.
¼	1725	145K§	$ 15.85	$ 19.60	$........	$ 0.90	1⅞	⅝	32	.78
¼	1140	145K§	23.25	27.00	....	.90	1⅞	⅝	32	1.10
½	3450	B145§	23.25	27.00	....	....	1½	½	37	1.50
½	1725	186§	22.50	26.50	....	2.00	2¼	¾	58	1.50
½	1140	186§	36.00	40.00	....	2.00	2¼	¾	58	1.80
½	825	204	44.00	48.00	6.00	2.00	2⅜	¾	105	2.11
¾	3450	186§	29.25	33.25	....	....	2¼	¾	58	2.20
¾	1725	186§	29.50	33.50	....	2.00	2¼	¾	61	2.30
¾	1145	204	39.00	43.00	6.00	2.00	2⅜	¾	105	2.81
¾	860	224	51.00	55.00	6.00	2.00	3⅛	1	145	3.27
1	1720	204	35.00	39.00	6.00	2.00	2⅜	¾	105	3.31
1	1145	204	42.00	46.00	6.00	2.00	2⅜	¾	105	3.40
1	860	225	58.00	62.00	6.00	2.00	3⅛	1	165	3.54
1½	3420	204	44.00	48.00	6.00	2.00	2⅜	¾	105	4.99
1½	1735	224	42.00	46.00	6.00	2.00	3⅛	1	145	4.40
1½	1125	224	49.00	53.00	6.00	2.00	3⅛	1	145	5.10
1½	860	254	70.00	74.00	6.00	2.00	3½	1⅛	185	6.16
2	3500	224	51.00	55.00	6.00	2.00	3⅛	1	145	6.01
2	1700	225	49.00	53.00	6.00	2.00	3⅛	1	165	5.70
2	1130	225	55.00	59.00	6.00	2.00	3⅛	1	165	6.62
2	860	254	81.00	85.00	6.00	2.00	3½	1⅛	185	7.80
3	3450	224	58.00	62.00	6.00	2.00	3⅛	1	145	9.03
3	1690	225	55.00	59.00	6.00	2.00	3⅛	1	165	8.75
3	1135	254	67.00	71.00	6.00	2.00	3½	1⅛	185	9.32
3	875	284	92.00	97.00	10.00	4.00	3⅞	1¼	256	10.1
5	3420	225	70.00	74.00	6.00	2.00	3⅛	1	165	13.20
5	1735	254	67.00	71.00	6.00	2.00	3½	1⅛	185	13.40
5	1135	284	88.00	92.00	10.00	4.00	3⅞	1¼	256	15.40
5	875	324	118.00	124.00	13.00	4.00	5	1⅝	345	15.30
7½	3470	254	92.00	97.00	6.00	2.00	3½	1⅛	185	20.50
7½	1740	284	88.00	92.00	10.00	4.00	3⅞	1¼	256	20.10
7½	1160	324	112.00	118.00	13.00	4.00	5	1⅝	345	20.60
7½	865	326	141.00	148.00	13.00	5.00	5	1⅝	385	21.40
10	3500	284	118.00	124.00	10.00	4.00	3⅞	1¼	256	26.20
10	1740	324	112.00	118.00	13.00	4.00	5	1⅝	345	26.20
10	1155	326	134.00	141.00	13.00	5.00	5	1⅝	385	26.50
10	875	365	176.00	185.00	13.00	5.00	5¾	1⅞	536	29.10
15	3500	324	141.00	148.00	13.00	4.00	5	1⅝	345	39.00
15	1750	326	134.00	141.00	13.00	5.00	5	1⅝	385	38.80
15	1165	365	176.00	185.00	13.00	5.00	5¾	1⅞	536	39.80
15	875	404	216.00	227.00	15.00	5.00	6½	2⅛	643	42.20
20	3475	326	168.00	176.00	13.00	5.00	5	1⅝	385	54.10
20	1750	364	160.00	168.00	13.00	5.00	5¾	1⅞	418	52.20
20	1165	404	216.00	227.00	15.00	5.00	6½	2⅛	643	52.80
20	880	405	254.00	267.00	15.00	5.00	6½	2⅛	733	54.80
25	1745	365	185.00	194.00	13.00	5.00	5¾	1⅞	536	60.50
25	1165	405	254.00	267.00	15.00	5.00	6½	2⅛	733	65.60
25	880	444	292.00	307.00	17.00	7.00	7¼	2⅜	941	67.00
30	1735	405	254.00	267.00	15.00	5.00	6½	2⅛	733	76.00
30	1175	444	292.00	307.00	17.00	7.00	7¼	2⅜	941	78.60
30	880	445	364.00	382.00	19.00	7.00	7¼	2⅜	1042	78.00

**When operated on 50 cycles, speeds are 5/6 of above.

§These are FS motors. Price is for 220 volts. For 440 and 550 volts there are variations in prices.

WESTINGHOUSE POLYPHASE LINESTART INDUCTION MOTORS

TYPES FS AND CS GENERAL-PURPOSE OR CLASS I SQUIRREL-CAGE MOTORS (Continued)

Normal Starting Torque—Low Starting Current—Constant Speed
40° C. Continuous—60/50 Cycles—2 and 3-Phase—220, 440 and 550 Volts

Hp.	** Approx. F.L. Rpm.	Frame	PRICE MOTOR ONLY Sealed Sleeve Bearing	Ball Bearing	ADD FOR Rails	Pulley	Shaft Dimensions Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	Approx. F.L. Amp. Term. 3-Ph. 220 V.
40	1760	444	**$307.00**	**$322.00**	**$17.00**	**$ 7.00**	7¼	2⅜	941	98.00
40	1170	445	**364.00**	**382.00**	**19.00**	**7.00**	7¼	2⅜	1042	103.00
40	880	504	**421.00**	**442.00**	**19.00**	**8.00**	8 1/16	2⅝	1400	108.00
50	1750	445S	**382.00**	**401.00**	*	†	4⅜	2⅛	1042	124.00
50	1175	504	**421.00**	**442.00**	**19.00**	**8.00**	8 1/16	2⅝	1400	126.00
50	880	505	**496.00**	**521.00**	**22.00**	**16.00**	8 13/16	2⅞	1534	133.00
60	1775	504S	**442.00**	**464.00**	*	†	4 7/16	2⅛	1400	147.00
60	1175	505	**496.00**	**521.00**	**22.00**	**16.00**	8 13/16	2⅞	1534	152.00
60	880	607	**572.00**	**601.00**	**24.00**	**25.00**	8 13/16	2⅞	1540	158.00
75	1775	505S	**521.00**	**547.00**	†	†	4 7/16	2⅛	1534	182.00
75	1180	607	**595.00**	**625.00**	**22.00**	**18.00**	8 13/16	2⅞	1540	182.00
75	870	752C	**672.00**	**706.00**	**25.00**	**25.00**	9¾	3⅜	2100	184.00
100	1780	607S	**666.00**	**699.00**	†	†	4 7/16	2⅛	1540	238.00
100	1175	752S	**779.00**	**818.00**	*	†	9¾	3⅜	2100	238.00
100	870	754C	**824.00**	**865.00**	**27.00**	**34.00**	9¾	3⅜	2100	248.00
100	700	854C	**986.00**	**1035.00**	**27.00**	**34.00**	13	3⅞	3190	254.00
100	580	854C	**1116.00**	**1172.00**	**70.00**	**46.00**	13	3⅞	3190	257.00
100	490	786C	**1274.00**	**1338.00**	**70.00**	**46.00**	13	3⅞	3395	---------
100	430	32A	**1414.00**	**1485.00**	**76.00**	**67.00**	9⅜	3.877	3600	---------
125	1775	761S	**794.00**	**834.00**	†	†	5¼	2⅝	2420	295.00
125	1160	752S	**928.00**	**974.00**	†	†	5¼	2⅝	2100	302.00
125	875	774C	**1043.00**	**1095.00**	**27.00**	**34.00**	9¾	3⅜	2420	297.00
125	705	856C	**1152.00**	**1210.00**	**70.00**	**46.00**	13	3⅞	3190	307.00
125	585	874C	**1280.00**	**1344.00**	**70.00**	**46.00**	13	3⅞	3395	311.00
125	490	32A	**1425.00**	**1496.00**	**76.00**	**67.00**	9⅜	3.877	3600	---------
125	430	32B	**1566.00**	**1644.00**	**83.00**	**67.00**	9⅜	3.877	3900	---------
150	1765	771.1S	**920.00**	**966.00**	†	†	5¼	2⅝	2640	348.00
150	1175	772S	**1078.00**	**1132.00**	†	†	5¼	2⅝	2640	348.00
150	870	854S	**1205.00**	**1265.00**	*	†	6¾	3⅜	3190	358.00
150	700	874C	**1290.00**	**1355.00**	**70.00**	**46.00**	13	3⅞	3395	372.00
150	585	876C	**1436.00**	**1508.00**	**76.00**	**67.00**	13	3⅞	3395	383.00
150	490	32B	**1574.00**	**1653.00**	**83.00**	**67.00**	9⅜	3.877	3900	---------
150	430	32B	**1717.00**	**1803.00**	**91.00**	**67.00**	9⅜	3.877	4000	---------
200	1770	855S	**1175.00**	**1234.00**	†	†	6¾	3⅜	3190	463.00
200	1165	871S	**1410.00**	**1481.00**	†	†	6¾	3⅜	3685	466.00
200	880	874S	**1520.00**	**1596.00**	*	†	6¾	3⅜	3395	464.00
200	690	32B	**1550.00**	**1628.00**	**76.00**	**67.00**	9⅜	3.877	3600	---------
200	585	32B	**1729.00**	**1815.00**	**83.00**	**67.00**	9⅜	3.877	3900	---------
200	490	34A	**1877.00**	**1971.00**	**91.00**	**85.00**	9⅜	3.877	4700	---------
200	430	34B	**2027.00**	**2128.00**	**91.00**	**94.00**	9⅜	3.877	5400	---------

**When operated on 50 cycles, speeds are 5/6 of above.

*Satisfactory for V-Belt drive under certain conditions.

†Not recommended for 2-bearing flat-belted service.

2200 Volt motors are obtainable—write for information.

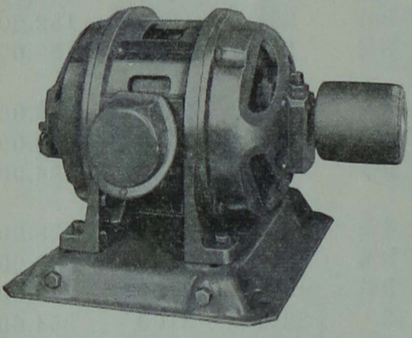
WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CS LINESTART SQUIRREL-CAGE MOTORS

Class II for Heavy Starting Duty

High Starting Torque—Low Starting Current
Constant Speed—Open Type—40° C.—60/50 Cycles—2 and 3-Phase, 220/440 Volts
3-Phase, 550 Volts

Class II linestart motors are designed for applications where a comparatively high starting torque (2 to 2½ times full load torque) is required to overcome the inertia and static friction of heavy conveyors, reciprocating pumps, air or ammonia compressors, etc. Motors of this type are also frequently designated as "double-deck" motors. However, it should be fully appreciated that, due to their constant-speed characteristic, these motors are not suitable for driving such machines as punch presses, etc., where a heavy flywheel is used to absorb the high peak loads.


Linestart Motor, Frames 254 to 445 Inclusive

The stators of both classes of these motors are the same as the stators of standard type CS squirrel-cage induction motors. The unit-frame design with feet cast integral with the frame provides a strong, rigid and compact construction.

The rotor windings of the smaller size motors are die cast by an exclusive Westinghouse process. In the larger motors, copper rotor bars are brazed to the end rings to form an indestructible rotor.

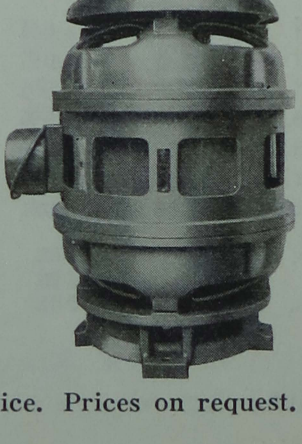
Sealed Sleeve bearings, with their dust and oil leakage proof features, are standard equipment on all ratings.

Linestart motors are available with all the usual modifications common to squirrel-cage motors, such as the vertical type for coupled service, and the built-in type which finds extensive use in machine tool and wood-working machinery applications.

Tabular listing on following page.

TYPE CS VERTICAL SOLID-SHAFT BALL-BEARING MOTORS

Constant Speed—40° C. Continuous

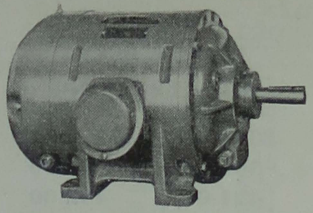


For general constant service. For driving machines in practically all industries. Made in all standard sizes of ¼-hp. and larger. Simple design and construction. Few parts, interchangeable wherever possible. Rotor practically indestructible. Bearings have liberal areas giving them long life. They are non-leaking, dust-protected. Balanced design and rugged construction insure dependable and efficient service. Prices on request.

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CS FAN-COOLED TOTALLY-ENCLOSED MOTORS

60 Cycles, 2 and 3-Phase—25 Cycles, 3-Phase
Constant Speed—55° C. Continuous


Frames 254 to 445 Inclusive

For use in applications where it is felt that the service conditions will be too severe to make use of a standard open motor advisable.

This type of motor, with its interior sealed from contact with outside air, offers an effective means of protection in foundries, cement mills, coke plants, flour mills, grain elevators, coal pulverizing plants, machine shops, foundry snagging rooms, etc., where the amount of dust and dirt present in the air may be sufficient to clog up the ventilating openings and air-gap of a standard motor. May be installed outdoors without additional protection.

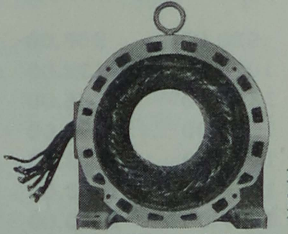
New Heat Exchanger Principle of External Ventilation—The motor frame contains two separate sets of air ducts, one set internal and one set external. The internal ducts are open in the interior part of the motor and the external ducts are open on the outside of the motor frame. These two sets of ducts are separated by a common wall.

The Heat Exchanger principle is used for cooling—internal fan on the rotor circulates the warm internal air through the internal ducts, the walls of which are cooled by the external fan blowing larger volumes of cool air through the external ducts, providing rapid transfer of heat from the motor—insuring long insulation life. The heavy cast bracket and frame construction is highly resistant to corrosive acid fumes that may be encountered around refineries or chemical plants, etc.

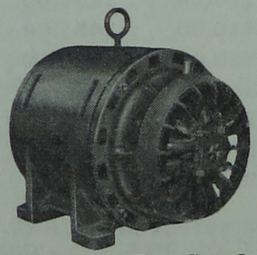
Special fan-cooled motors may be furnished at standard price for Class II, Group G Hazardous Locations of grain elevators, feed mills, starch plants, etc.

TYPE CS EXPLOSION-PROOF MOTORS

For Class I, Group D Hazardous Locations


End View of Stator

Rotor Complete with Self-contained Cartridge Type Bearing Housings. Dust-Tight and Grease-Tight.


Motor with Fan Guard Removed, showing Non-Sparking Fan. 55° C. rise, Continuous Duty.

Explosion-proof motors are labelled, indicating they have been inspected and approved by the Underwriters' Laboratories, Inc., for use in hazardous atmospheres containing gasoline vapors and other gases or vapors having equivalent or less hazard, such as: petroleum products, ethyl alcohol, methyl alcohol, acetone, lacquers and solvent vapors. May be installed outdoors without additional protection.

Tabular listing on following page.

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CS LINESTART SQUIRREL-CAGE MOTORS

High Starting Torque—Low Starting Current—Constant Speed—40° C. Continuous
60/50 Cycles—2 and 3-Phase—220, 440 and 550 Volts

Class II Motors—(Continued)

			PRICE MOTOR ONLY		ADD FOR		Shaft Dimensions			
Hp.	** Approx. F.L. Rpm.	Frame	Sealed Sleeve Bearing	Ball Bearing	Rails	Pulley	Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	Approx. F.L.■ Amps. 3-Ph. 220 V.
3	1155	254	$ 70.00	$ 74.00	$ 6.00	$ 2.00	3½	1⅛	185	10.50
3	880	284	97.00	102.00	10.00	4.00	3⅞	1¼	256	11.35
3	695	324	129.00	135.00	13.00	4.00	5	1⅝	345	11.62
5	1740	254	70.00	74.00	6.00	2.00	3½	1⅛	185	13.65
5	1155	284	92.00	97.00	10.00	4.00	3⅞	1¼	256	15.00
5	870	324	124.00	130.00	13.00	4.00	5	1⅝	345	17.00
5	695	326	154.00	162.00	13.00	5.00	5	1⅝	385	18.60
7½	1725	284	92.00	97.00	10.00	4.00	3⅞	1¼	256	20.40
7½	1160	324	118.00	124.00	13.00	4.00	5	1⅝	345	22.00
7½	870	326	148.00	155.00	13.00	5.00	5	1⅝	385	24.50
7½	695	365	209.00	219.00	13.00	5.00	5¾	1⅞	536	28.00
10	1745	324	118.00	124.00	13.00	4.00	5	1⅝	345	27.00
10	1160	326	141.00	148.00	13.00	5.00	5	1⅝	385	28.10
10	870	365	189.00	198.00	13.00	5.00	5¾	1⅞	536	31.90
15	1750	326	141.00	148.00	13.00	5.00	5	1⅝	385	39.80
15	1145	365	189.00	198.00	13.00	5.00	5¾	1⅞	536	43.20
15	870	404	232.00	244.00	15.00	5.00	6½	2⅛	643	48.70
20	1730	364	172.00	181.00	13.00	5.00	5¾	1⅞	418	55.00
20	1165	404	232.00	244.00	15.00	5.00	6½	2⅛	643	55.60
20	870	405	273.00	287.00	15.00	5.00	6½	2⅛	733	62.40
25	1740	365	199.00	209.00	13.00	5.00	5¾	1⅞	536	63.40
25	1160	405	273.00	287.00	15.00	5.00	6½	2⅛	733	68.60
25	870	444	336.00	353.00	17.00	7.00	7¼	2⅜	941	71.20
30	1720	405	273.00	287.00	15.00	5.00	6½	2⅛	733	81.90
30	1165	444	336.00	353.00	17.00	7.00	7¼	2⅜	941	83.40
30	870	445	419.00	440.00	19.00	7.00	7¼	2⅜	1042	84.40
40	1745	444	353.00	371.00	17.00	7.00	7¼	2⅜	941	103.50
40	1165	445	419.00	440.00	19.00	7.00	7¼	2⅜	1042	112.40
40	870	504	484.00	508.00	19.00	8.00	8 1/16	2⅝	1400	121.80
50	1765	445S	439.00	461.00	19.00*	†	4⅜	2⅛	1042	130.10
50	1175	504	484.00	508.00	19.00	8.00	8 1/16	2⅝	1400	130.80
50	870	505	570.00	599.00	22.00	16.00	8 13/16	2⅞	1534	177.70
60	1760	504S	508.00	533.00	19.00*	†	4 7/16	2⅛	1400	152.50
60	1160	505	570.00	599.00	22.00	16.00	8 13/16	2⅞	1534	159.70
60	870	607	658.00	691.00	24.00	25.00	8 13/16	2⅞	1540	173.00
75	1765	505S	599.00	629.00	†	†	4 7/16	2⅛	1534	190.60
75	1160	607	684.00	718.00	22.00	18.00	8 13/16	2⅞	1540	195.20
75	870	762C‡	773.00	812.00	25.00	25.00	9¾	3⅜	2270	210.00
100	1775	607S	766.00	804.00	†	†	4 7/16	2⅛	2000	245.50
100	1175	760S	896.00	941.00	25.00*	†	5¼	2⅝	2420	262.80
100	875	762C‡	948.00	995.00	27.00	34.00	9¾	3⅜	2270	262.00
125	1770	771.1S	912.00	958.00	†	†	5¼	2⅝	2420	306.00
125	1175	764S	1067.00	1120.00	†	†	5¼	2⅝	2420	322.10
125	875	774C‡	1199.00	1259.00	27.00	34.00	9¾	3⅜	2420	332.00
150	1770	771.1S	1058.00	1111.00	†	†	5¼	2⅝	2420	380.00
150	1175	774S	1240.00	1302.00	†	†	5¼	2⅝	2420	386.40
150	880	856S	1385.00	1454.00	27.00*	†	6¾	3⅜	3190	---------

*Not recommended for 2-bearing flat-belted service, but satisfactory for 2-bearing V-Belt service.

**When operated on 50-cycle, speeds are ⅚ of above.

■Rating for 440 volts is 50% of 220-volt rating; 550-volt rating is 40% of 220-volt rating.

†Not recommended for belted service.

‡When Class II motors are belted, the Type D frame is used.

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CS FAN-COOLED AND EXPLOSION-PROOF TOTALLY ENCLOSED

Normal Starting Torque—Low Starting Current—Constant Speed—55° C. Continuous

Ball Bearings*—60 Cycles—2 and 3-Phase—220, 440 and 550 Volts

			PRICE MOTOR ONLY		ADD FOR		Shaft Dimensions			
Hp.	Approx. F.L. Rpm.	Frame	Standard Fan Cooled	Explosion Proof	Rails	Pulley	Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	Approx. F.L. Amps. 3-Ph. 220 V.
1	690	254	**$112.00‡**	**$134.00**	**$6.00**	**$2.00**	3½	1⅛	185	......
1½	870	254†	**81.00**	**103.00**	**6.00**	**2.00**	3½	1⅛	185	6.5
1½	690	254	**121.00**	**143.00**	**6.00**	**2.00**	3½	1⅛	185	......
2	1750	225	**76.00**	**94.00**	**6.00**	**2.00**	3⅛	1	165	5.7
2	1160	225	**82.00‡**	**100.00**	**6.00**	**2.00**	3⅛	1	165	6.9
2	870	254	**113.00**	**135.00**	**6.00**	**2.00**	3½	1⅛	185	7.3
3	1750	225	**82.00**	**100.00**	**6.00**	**2.00**	3⅛	1	165	8.5
3	1160	254	**99.00**	**121.00**	**6.00**	**2.00**	3½	1⅛	185	9.3
3	870	284	**135.00**	**159.00**	**10.00**	**4.00**	3⅞	1¼	256	9.8
5	1750	254	**99.00**	**121.00**	**6.00**	**2.00**	3½	1⅛	185	14.0
5	1160	284	**131.00**	**155.00**	**10.00**	**4.00**	3⅞	1¼	256	16.0
5	870	324	**178.00**	**209.00**	**13.00**	**4.00**	5	1⅝	345	15.0
7½	1750	284	**131.00**	**155.00**	**10.00**	**4.00**	3⅞	1¼	256	20.0
7½	1160	324	**172.00**	**203.00**	**13.00**	**4.00**	5	1⅝	345	20.0
7½	870	326	**201.00**	**232.00**	**13.00**	**5.00**	5	1⅝	385	21.0
10	1750	324	**172.00**	**203.00**	**13.00**	**4.00**	5	1⅝	345	26.0
10	1160	326	**194.00**	**225.00**	**13.00**	**5.00**	5	1⅝	385	26.0
10	870	365	**263.00**	**308.00**	**13.00**	**5.00**	5¾	1⅞	536	29.0
15	1750	326	**194.00**	**225.00**	**13.00**	**5.00**	5	1⅝	385	37.0
15	1160	365	**263.00**	**308.00**	**13.00**	**5.00**	5¾	1⅞	536	38.0
15	870	404	**320.00**	**386.00**	**15.00**	**5.00**	6½	2⅛	643	44.0
20	1750	364	**247.00**	**292.00**	**13.00**	**5.00**	5¾	1⅞	418	52.0
20	1160	404	**320.00**	**386.00**	**15.00**	**5.00**	6½	2⅛	643	52.0
20	870	405	**358.00**	**424.00**	**15.00**	**5.00**	6½	2⅛	733	55.0
25	1750	365	**272.00**	**317.00**	**13.00**	**5.00**	5¾	1⅞	536	64.0
25	1160	405	**358.00**	**424.00**	**15.00**	**5.00**	6½	2⅛	733	66.0
25	870	444	**438.00**	**529.00**	**17.00**	**7.00**	7¼	2⅜	941	65.0
30	1750	405	**358.00**	**424.00**	**15.00**	**5.00**	6½	2⅛	733	79.0
30	1160	444	**438.00**	**529.00**	**17.00**	**7.00**	7¼	2⅜	941	76.0
30	870	445	**546.00**	**637.00**	**19.00**	**7.00**	7¼	2⅜	1042	79.0
40	1750	444	**461.00**	**552.00**	**17.00**	**7.00**	7¼	2⅜	941	102.0
40	1160	445	**546.00**	**637.00**	**19.00**	**7.00**	7¼	2⅜	1042	103.0
40	870	504	**695.00**	**786.00**	**19.00**	**8.00**	8 1/16	2⅝	1400	97.0
50	1750	445S	**630.00**	**721.00**	**19.00§**	¶	4⅜	2⅛	1042	63.0
50	1160	504	**695.00**	**786.00**	**19.00**	**8.00**	8 1/16	2⅝	1400	65.5
50	870	505	**818.00**	**909.00**	**22.00**	**16.00**	8 13/16	2⅞	1534	62.5

*Motors built in frames 504 and larger, have roller bearings on the shaft extension end (except motors used for coupled service which have single row wide inner race ball bearings in the coupling end).

†All motors of this rating are totally-enclosed, non-ventilated, ball-bearing motors. For standard sleeve-bearing motors in this small rating, divide the ball-bearing motor prices by **$105**. Correct prices to nearest even dollar. Minimum deduction from ball bearing motor price for sleeve bearing motor, **$4.00**.

‡Write for price of enclosed standard non-ventilated motor, which is lower in price than the fan-cooled motor of this rating.

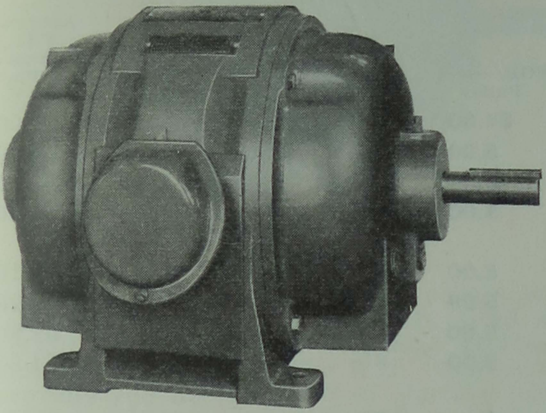
¶Not recommended for 2-bearing flat-belted service.

§Not recommended for 2-bearing flat-belted service, but satisfactory for 2-bearing V-belt drive. Order must state that motors are for V-belt drive, and must specify shaft extension for belt drive.

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CS GENERAL-PURPOSE AND LINESTART SQUIRREL-CAGE MOTORS SPLASH-PROOF AND DRIP-PROOF

Constant Speed—50° C. Continuous—60 Cycles A-C.—2 and 3-Phase
220, 440 and 550 Volts



Splash-Proof CS Motor

Westinghouse Splash-proof, Type CS motors are extensively used in food products plants, dairies, etc., where cleaning is done with a hose, in chemical plants, laundries, certain sections of paper mills, etc., where dripping and splashing chemicals or water are encountered, and in coal preparation plants, rock products plants, lumber mills, and boiler rooms, where there are falling and flying particles.

These motors have solid cast frames and end-brackets which resist corrosion and protect the windings from dripping or splashing liquids.

They are not only splash-proof and drip-proof, but may be hosed down.

Double-end ventilation assures thorough cooling. The motors are weatherproof and may be used outdoors, in oil fields, refineries, construction jobs.

Tuffernell Insulation—coils are protected with a tough, flexible finish, which protects them from moisture, mild chemical fumes, oil and abrasive dust.

			PRICE MOTOR ONLY		ADD FOR		Shaft Dimensions			
Hp.	Approx. F.L. Rpm.*	Frame	Sealed Sleeve Bearing	Ball Bearing	Rails	Pulley	Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	Approx. F.L. Amps. 3-Ph. 220 V.
(For smaller motors, refer to fractional horsepower price lists.)										
½	870	204†	**$48.00**	**$52.00**	**$6.00**	**$2.00**	2⅜	¾	95	2.11
¾	1160	204†	**43.00**	**47.00**	**6.00**	**2.00**	2⅜	¾	95	2.81
¾	870	224†	**56.00**	**60.00**	**6.00**	**2.00**	3⅛	1	140	3.27
1	1750	204†	**39.00**	**43.00**	**6.00**	**2.00**	2⅜	¾	95	3.31
1	1160	204†	**46.00**	**50.00**	**6.00**	**2.00**	2⅜	¾	95	3.40
1	870	225†	**63.00**	**67.00**	**6.00**	**2.00**	3⅛	1	160	3.54
1½	3500	204	**48.00**	**52.00**	**6.00**	**2.00**	2⅜	¾	95	4.99
1½	1750	224†	**47.00**	**51.00**	**6.00**	**2.00**	3⅛	1	140	4.40
1½	1160	224	**54.00**	**58.00**	**6.00**	**2.00**	3⅛	1	140	5.10
1½	870	254†	**77.00**	**81.00**	**6.00**	**2.00**	3½	1⅛	200	6.16
2	3500	224	**55.00**	**59.00**	**6.00**	**2.00**	3⅛	1	140	6.01
2	1750	225	**54.00**	**58.00**	**6.00**	**2.00**	3⅛	1	160	5.70
2	1160	225	**60.00**	**64.00**	**6.00**	**2.00**	3⅛	1	160	6.62
2	870	254	**88.00**	**92.00**	**6.00**	**2.00**	3½	1⅛	200	7.80
3	3500	224	**63.00**	**67.00**	**6.00**	**2.00**	3⅛	1	140	9.03
3	1750	225	**60.00**	**64.00**	**6.00**	**2.00**	3⅛	1	160	8.75
3	1160	254	**74.00**	**78.00**	**6.00**	**2.00**	3½	1⅛	200	9.32
3	870	284	**101.00**	**106.00**	**10.00**	**4.00**	3⅞	1¼	275	10.10
5	3500	225	**75.00**	**79.00**	**6.00**	**2.00**	3⅛	1	160	13.20
5	1750	254	**74.00**	**78.00**	**6.00**	**2.00**	3½	1⅛	200	13.40
5	1160	284	**97.00**	**101.00**	**10.00**	**4.00**	3⅞	1⅛	275	15.40
5	870	324	**130.00**	**136.00**	**13.00**	**4.00**	5	1⅝	405	15.30
7½	3500	254	**99.00**	**104.00**	**6.00**	**2.00**	3½	1⅛	200	20.50
7½	1750	284	**97.00**	**101.00**	**10.00**	**4.00**	3⅞	1¼	275	20.10
7½	1160	324	**124.00**	**130.00**	**13.00**	**4.00**	5	1⅝	407	20.60
7½	870	326	**153.00**	**160.00**	**13.00**	**5.00**	5	1⅝	440	21.40
10	3500	284	**127.00**	**133.00**	**10.00**	**4.00**	3⅞	1⅛	275	26.20
10	1750	324	**124.00**	**130.00**	**13.00**	**4.00**	5	1⅝	407	26.20
10	1160	326	**146.00**	**153.00**	**13.00**	**5.00**	5	1⅝	440	26.50
10	870	365	**194.00**	**203.00**	**13.00**	**5.00**	5¾	1⅞	550	29.10

*Starting torque developed by the 3500 Rpm. 2-pole motors is lower than NEMA standard torque, but it is ample for centrifugal pumps and blowers or any application requiring low starting torque. 1750 Rpm. ratings are 4-pole; 1160 Rpm.—6-pole, and 870 Rpm.—8-pole.

†These are totally-enclosed, non-ventilated 55° C. motors.

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CS GENERAL-PURPOSE AND LINESTART SQUIRREL-CAGE MOTORS SPLASH-PROOF AND DRIP-PROOF

CLASS I MOTORS—(Continued)

Constant Speed—50° C. Continuous—60 Cycles A-C.—2 and 3-Phase
220, 440 and 550 Volts

			PRICE MOTOR ONLY		ADD FOR		Shaft Dimensions			
Hp.	Approx. F.L. Rpm.*	Frame	Sealed Sleeve Bearing	Ball Bearing	Rails	Pulley	Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	Approx. F.L. Amps. 3-Ph. 220 V.
15	3500	324	**$153.00**	**$160.00**	**$13.00**	**$4.00**	5	1⅝	407	39.00
15	1750	326	**146.00**	**153.00**	**13.00**	**5.00**	5	1⅝	440	38.80
15	1160	365	**194.00**	**203.00**	**13.00**	**5.00**	5¾	1⅞	550	39.80
15	870	404	**240.00**	**251.00**	**15.00**	**5.00**	6½	2⅛	700	42.20
20	3500	326	**180.00**	**188.00**	**13.00**	**5.00**	5	1⅝	440	54.10
20	1750	364	**178.00**	**186.00**	**13.00**	**5.00**	5¾	1⅞	510	52.20
20	1160	404	**240.00**	**251.00**	**15.00**	**5.00**	6½	2⅛	700	52.80
20	870	405	**278.00**	**291.00**	**15.00**	**5.00**	6½	2⅛	750	54.80
25	3500	364S	**212.00**	**222.00**	‡	‡	3⅜	1⅝	510	67.40
25	1750	365	**203.00**	**212.00**	**13.00**	**5.00**	5¾	1⅞	550	60.50
25	1160	405	**278.00**	**291.00**	**15.00**	**5.00**	6½	2⅛	750	65.60
25	870	444	**325.00**	**340.00**	**17.00**	**7.00**	7¼	2⅜	920	67.00
30	3500	365S	**285.00**	**298.00**	‡	‡	3⅜	1⅝	550	74.30
30	1750	405	**278.00**	**291.00**	**15.00**	**5.00**	6½	2⅛	750	76.00
30	1160	444	**325.00**	**340.00**	**17.00**	**7.00**	7¼	2⅜	920	78.60
30	870	445	**397.00**	**415.00**	**19.00**	**7.00**	7¼	2⅜	1010	78.00
40	3500	404S	**346.00**	**362.00**	‡	‡	3⅞	1⅞	700	104.00
40	1750	444	**340.00**	**355.00**	**17.00**	**7.00**	7¼	2⅜	920	98.00
40	1160	445	**397.00**	**415.00**	**19.00**	**7.00**	7¼	2⅜	1010	103.00
40	870	504	**467.00**	**488.00**	**19.00**	**8.00**	8 1/16	2⅝	1460	108.00
50	3500	405S	**425.00**	**445.00**	‡	‡	3⅞	1⅞	750	124.00
50	1750	445S	**415.00**	**434.00**	**19.00§**	‡	4⅜	2⅛	1010	124.00
50	1160	504	**467.00**	**488.00**	**19.00**	**8.00**	8 1/16	2⅝	1460	126.00
50	870	505	**542.00**	**567.00**	**22.00**	**16.00**	8 13/16	2⅞	1595	133.00
60	3500	444S	**497.00**	**520.00**	‡	‡	4⅜	2⅛	920	152.00
60	1750	504S	**488.00**	**510.00**	**19.00§**	‡	4 7/16	2⅛	1465	147.00
60	1160	505	**542.00**	**567.00**	**22.00**	**16.00**	8 13/16	2⅞	1595	152.00
60	870	607	**629.00**	**658.00**	**24.00**	**25.00**	8 13/16	2⅞	1770	158.00
75	3500	445S	**632.00**	**662.00**	‡	‡	4⅜	2⅛	1010	185.00
75	1750	505S	**567.00**	**593.00**	‡	‡	4 7/16	2⅛	1595	182.00
75	1160	607	**655.00**	**685.00**	**22.00**	**18.00**	8 13/16	2⅞	1770	182.00
75	870	752C	**739.00**	**773.00**	**25.00**	**25.00**	9¾	3⅜	2200	184.00
100	1750	607S	**733.00**	**766.00**	----------	----------	4 7/16	2⅛	1770	238.00
100	1160	752S	**857.00**	**896.00**	**25.00§**	‡	5¼	2⅝	2200	238.00
100	870	754C	**906.00**	**947.00**	**27.00**	**34.00**	9¾	3⅜	2200	248.00

*Starting torque developed by the 3500 Rpm. 2-pole motors is lower than NEMA standard torque, but it is ample for centrifugal pumps and blowers or any application requiring low starting torque. 1750 Rpm. ratings are 4-pole; 1160 Rpm.—6-pole, and 870 Rpm.—8-pole.

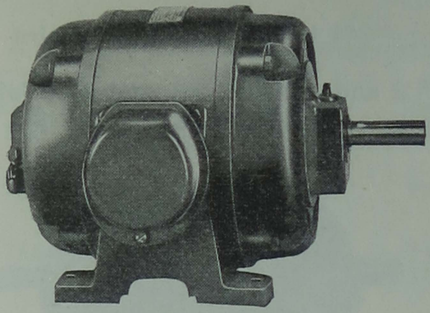
‡Not recommended for belted service.

§Not recommended for 2-bearing flat-belted service, but satisfactory for 2-bearing V-Belt drive. Order must state that motors are for V-Belt drive and must specify shaft extension for belt drive.

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CS SQUIRREL-CAGE HOIST MOTORS

High Starting Torque—High Slip—Intermittent Ratings—Low Starting Current
50° and 55° C.—60 Cycles—2 and 3-Phase—220, 440 and 550 Volts



Open Type CS Hoist Motor Frame 225 with Sealed-Sleeve Bearings

Type CS Hoist Motors are for severe intermittent service where frequent starts, stops and reversals are encountered and high inertia loads must be accelerated. The high resistance rotor provides the highest ratio of starting torque to starting current obtainable with a squirrel-cage motor. They cause minimum disturbance to the line and permit the use of low-cost full-voltage starter on the majority of installations.

These motors are designed especially for hoist service and similar applications, such as: door operators, auto lifts, gate valves, blast furnace mud guns, car spotters, winches, etc.

Their high slip characteristics with drooping speed torque curve provide rapid yet smooth acceleration. They handle light loads quickly while heavier loads cause the speed to decrease with a corresponding increase in torque.

Single or double-extended shaft, either straight or tapered, can be supplied. Motors also can be built with special mounting brackets such as NEMA Class "B" flanges, faceplate brackets, and with one or both brackets omitted for those built-in applications where the frames are bolted directly to the driven machine. Rigid cast frame and bracket construction is especially suited to overhung mountings.

			PRICE—BARE MOTOR*				ADD FOR SPECIAL SHAFTS				
			Open 30 Min. 50° C.†		Enclosed 15 Min. 55° C.‡						
Hp.	Approx. F.L. Rpm.	Frame	Sleeve Bear.	Ball Bear.	Sleeve Bear.	Ball Bear.	Both Ends Straight	Drive End Tapered	One End Straight One End Tapered	Both Ends Tapered	Approx. Shpg. Wt. Lbs.
1½	1050	204	**$48.00**	**$52.00**	**$53.00**	**$57.00**	**$2.00**	**$2.00**	**$3.00**	**$4.00**	95
1½	800	224	**67.00**	**71.00**	**73.00**	**77.00**	**3.00**	**3.00**	**4.00**	**5.00**	125
2	1600	204	**48.00**	**52.00**	**53.00**	**57.00**	**3.00**	**3.00**	**4.00**	**5.00**	95
2	1050	224	**56.00**	**60.00**	**62.00**	**66.00**	**3.00**	**3.00**	**4.00**	**5.00**	125
2	800	225	**81.00**	**85.00**	**88.00**	**92.00**	**3.00**	**3.00**	**4.00**	**5.00**	145
3	1600	224	**56.00**	**60.00**	**62.00**	**66.00**	**3.00**	**3.00**	**4.00**	**5.00**	125
3	1050	225	**63.00**	**67.00**	**69.00**	**73.00**	**3.00**	**3.00**	**4.00**	**5.00**	145
3	840	254	**93.00**	**98.00**	**100.00**	**105.00**	**3.00**	**3.00**	**4.00**	**5.00**	162
5	1560	225	**63.00**	**67.00**	**69.00**	**73.00**	**3.00**	**3.00**	**4.00**	**5.00**	145
5	1080	S284	**77.00**	**81.00**	**84.00**	**88.00**	**3.00**	**3.00**	**4.00**	**5.00**	210
5	785	S284	**106.00**	**111.00**	**117.00**	**122.00**	**4.00**	**5.00**	**6.00**	**7.00**	280
7½	1600	S254	**77.00**	**81.00**	**84.00**	**88.00**	**3.00**	**3.00**	**4.00**	**5.00**	162
7½	1050	S254	**101.00**	**106.00**	**112.00**	**117.00**	**4.00**	**5.00**	**6.00**	**7.00**	280
7½	800	324	**136.00**	**143.00**	**151.00**	**158.00**	**5.00**	**6.00**	**7.00**	**9.00**	303
10	1600	S284	**101.00**	**106.00**	**112.00**	**117.00**	**4.00**	**5.00**	**6.00**	**7.00**	285
10	1050	S324	**129.00**	**135.00**	**144.00**	**150.00**	**5.00**	**6.00**	**7.00**	**9.00**	380
10	800	326	**162.00**	**170.00**	**177.00**	**185.00**	**5.00**	**6.00**	**7.00**	**9.00**	336
15	1600	S324	**129.00**	**135.00**	**144.00**	**150.00**	**5.00**	**6.00**	**7.00**	**9.00**	380
15	1050	326	**154.00**	**162.00**	**169.00**	**177.00**	**5.00**	**6.00**	**7.00**	**9.00**	336
15	800	365	**202.00**	**212.00**	**224.00**	**234.00**	**7.00**	**9.00**	**10.00**	**13.00**	457
20	1600	326	**154.00**	**162.00**	**169.00**	**177.00**	**5.00**	**6.00**	**7.00**	**9.00**	336
20	1050	365	**202.00**	**212.00**	**224.00**	**234.00**	**7.00**	**9.00**	**10.00**	**13.00**	457
20	800	404	**248.00**	**260.00**	**278.00**	**290.00**	**9.00**	**11.00**	**13.00**	**16.00**	567
25	1600	364	**184.00**	**193.00**	**206.00**	**215.00**	**7.00**	**9.00**	**10.00**	**13.00**	418
25	1050	404	**248.00**	**260.00**	**278.00**	**290.00**	**9.00**	**11.00**	**13.00**	**16.00**	567
25	800	405	**292.00**	**307.00**	**322.00**	**337.00**	**9.00**	**11.00**	**13.00**	**16.00**	616
30	1600	365	**213.00**	**224.00**	**235.00**	**246.00**	**7.00**	**9.00**	**10.00**	**13.00**	457
30	1050	405	**292.00**	**307.00**	**322.00**	**337.00**	**9.00**	**11.00**	**13.00**	**16.00**	616
30	800	444	**336.00**	**353.00**	**372.00**	**389.00**	**14.00**	**18.00**	**20.00**	**26.00**	941
40	1600	405	**292.00**	**307.00**	**322.00**	**337.00**	**9.00**	**11.00**	**13.00**	**16.00**	616
40	1050	444	**336.00**	**353.00**	**372.00**	**389.00**	**14.00**	**18.00**	**20.00**	**26.00**	941
40	800	445	**419.00**	**440.00**	**455.00**	**476.00**	**14.00**	**18.00**	**20.00**	**26.00**	1042
50	1600	444	**353.00**	**371.00**	**389.00**	**407.00**	**14.00**	**18.00**	**20.00**	**26.00**	941
50	1050	445	**419.00**	**440.00**	**455.00**	**476.00**	**14.00**	**18.00**	**20.00**	**26.00**	1042
50	800	504	**484.00**	**508.00**	**526.00**	**550.00**	**16.00**	**21.00**	**23.00**	**30.00**	1400

*With standard single extended straight shaft.

†For open 15 minute 50°C. ratings use same prices as for open 30 minute ratings.

‡For enclosed 30 minute 55°C. ratings, 1½ to 25 horsepower inclusive, use price of next larger enclosed 15 minute motor of same speed. When exact frame size is required, refer to us.

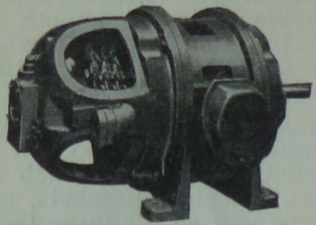
WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CW WOUND-ROTOR INDUCTION MOTORS

For Constant and Adjustable Varying-Speed Continuous Service

½ to 200 H.P. and Higher, 60 Cycles

220, 440 and 550 Volts, 2 and 3-Phase
2200 Volts, 3-Phase



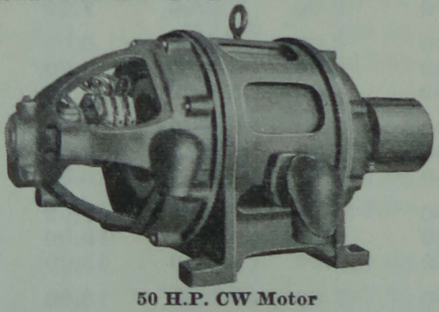
15 H.P. Motor on Solid-Cast Frame

The balanced design and rugged construction of the complete line of CW wound-rotor induction motors, especially adapts them for driving compressors, plunger pumps, positive pressure blowers, mine hoists and for bringing heavy loads up to speed.

These motors are designed for continuous-duty service, for applications where constant or varying speed is required. For constant speed service, they are recommended in applications requiring high starting torque with low starting current. This is obtained by inserting properly designed resistance in the rotor circuit when starting the motor. It is brought up to speed by cutting out this resistance with a starter.

For varying-speed service, a controller with resistance is furnished to obtain continuous operation on any running point, from one-half to full-load speed, for either variable-torque or constant-torque service.

Type CW motors are designed for long life and low maintenance. The rigid cast frame with feet cast integral assures that bearing alignment and airgap dimensions will be unchanging regardless of twists and strains. Windings are protected and treated to prevent damage by oil, grit, moisture, mild chemicals and metallic dust.



50 H.P. CW Motor

These motors are equipped with Sealed Sleeve bearings in order to secure long life and freedom from maintenance troubles. This type of bearing seals out all dust and seals in the oil. Ball bearings can be furnished on frames 254 to 800-C inclusive when specified.

Terminal boxes for conduit wiring are included as standard equipment with all frames except for the 32 series and larger which will be supplied without charge if specified.

A sliding base is necessary for adjusting the belt or chain tension. A pressed-steel bedplate can be supplied for frames 326 and smaller sizes. Pressed-steel slide-rails are available for frames 364 and larger.

Type CW motors are regularly arranged for floor mounting but will be arranged for wall or ceiling mounting on all frames 800-C and below. Motor on 900 and 1000 frames are arranged for floor mounting only.

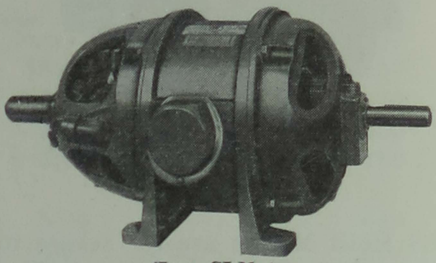
Mechanical modifications to meet various special applications can be furnished upon request.

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CI CRANE AND HOIST WOUND-ROTOR MOTORS

¾ to 200 H.P. — 60 Cycles

2 and 3-Phase, 220 and 440 Volts;
3-Phase, 550 Volts



Type CI Motor
Equipped with Sealed Sleeve Bearings

Westinghouse type CI wound-rotor motors are especially designed for heavy duty on cranes, hoists, lift and swing bridges, railway turntables, transfer tables, etc., and are adapted, both mechanically and electrically, to meet the requirements of severe intermittent varying-speed reversing service. Long experience in motor building and thorough familiarity with the service requirements, have resulted in a motor that is giving satisfactory service under all industrial conditions for which it was designed.

Tuffernell Insulation—Tough, flexible insulation with taped end-turns which resists moisture, oil, dust, grit and mild chemicals assuring long life.

Type CI motors are furnished equipped with the Sealed-Sleeve bearing. The design of this bearing is such that it is sealed against the entrance of dirt or foreign matter and against the exit of oil or oily vapor into the motor and the windings. Long life and freedom from operating troubles result.

The cast frames and brackets are strong and massive. Maximum strength has been attained, while weight and over-all dimensions have been reduced to a minimum. Cast-iron brackets with reinforced ribs, accurately machined to fit the frame, assure the utmost rigidity and perfect alignment of the bearings at all times.

The rotor is small in diameter, thus reducing the flywheel effect. This feature, together with perfect balance and secure attachment of the windings, make these motors especially adapted for frequent starting, stopping and reversing. The shaft is of axle steel; it can be removed from the rotor without disturbing the windings. Standard motors are furnished with tapered shaft extension at both ends. Also furnished with straight shaft extension.

Partially-closed slots and shaped coils are used in both the rotor and stator of the smaller motors. Larger motors have open slots and form-wound coils held in place by wedges. All coils are well insulated, and those of the stator are rigidly braced at the ends by means of insulated steel rings.

Type CI motors possess excellent electrical characteristics and the pull-out torque of all motors is approximately two and one-half times full-load torque.

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CW WOUND-ROTOR MOTORS

**For General Purpose Applications—Constant and Varying Speed—Cont. Rtd. 40° C.
Open—60 Cycles—2 and 3-Phase—220, 440 and 550 Volts**

			PRICE MOTOR ONLY		ADD FOR		Shaft Dimensions			
Hp.	** Approx. F.L. Rpm.	Frame	Sealed Sleeve Bearing	Ball Bearing	Rails	Pulley	Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	Approx. F.L. Amps.* 3-Ph. 220 V.
½	1160	204	$100.00	$105.00	$6.00	$2.00	2⅜	¾	122	....
¾	1160	204	109.00	114.00	6.00	2.00	2⅜	¾	122	....
1	1750	204	113.00	119.00	6.00	2.00	2⅜	¾	122	4.2
1	1160	204	122.00	128.00	6.00	2.00	2⅜	¾	122	4.5
1½	1750	224	115.00	121.00	6.00	2.00	3⅛	1	135	5.5
1½	1160	224	133.00	140.00	6.00	2.00	3⅛	1	135	5.6
1½	870	254	156.00	164.00	6.00	2.00	3½	1⅛	185	6.0
2	1750	225	120.00	126.00	6.00	2.00	3⅛	1	155	7.0
2	1160	225	144.00	151.00	6.00	2.00	3⅛	1	155	7.2
2	870	254	171.00	180.00	6.00	2.00	3½	1⅛	185	8.3
2	690	324	227.00	238.00	13.00	4.00	5	1⅝	345	....
3	1750	225	136.00	143.00	6.00	2.00	3⅛	1	155	10.2
3	1160	254	165.00	173.00	6.00	2.00	3½	1⅛	185	10.3
3	870	284	194.00	204.00	10.00	4.00	3⅞	1¼	256	10.3
3	690	326	238.00	250.00	13.00	5.00	5	1⅝	385	11.7
5	1750	254	166.00	174.00	6.00	2.00	3½	1⅛	185	14.3
5	1160	284	201.00	211.00	10.00	4.00	3⅞	1¼	256	15.8
5	870	324	240.00	252.00	13.00	4.00	5	1⅝	345	16.8
5	690	365	369.00	387.00	13.00	5.00	5¾	1⅞	536	20.3
7½	1750	284	197.00	207.00	10.00	4.00	3⅞	1¼	256	20.3
7½	1160	324	241.00	253.00	13.00	4.00	5	1⅝	345	24.5
7½	870	326	288.00	302.00	13.00	5.00	5	1⅝	385	23.4
7½	690	404	424.00	445.00	15.00	5.00	6½	2⅛	643	25.6
10	1750	324	230.00	242.00	13.00	4.00	5	1⅝	345	26.6
10	1160	326	275.00	289.00	13.00	5.00	5	1⅝	385	28.5
10	870	365	341.00	358.00	13.00	5.00	5¾	1⅞	536	29.6
10	690	405	465.00	488.00	15.00	5.00	6½	2⅛	733	32.1
15	1750	326	321.00	337.00	13.00	5.00	5	1⅝	385	38.1
15	1160	365	347.00	364.00	13.00	5.00	5¾	1⅞	536	41.4
15	870	404	422.00	443.00	15.00	5.00	6½	2⅛	643	44.0
15	690	444	548.00	575.00	17.00	7.00	7¼	2⅜	941	47.0
15	580	445	592.00	622.00	19.00	7.00	7¼	2⅜	1042	49.7
20	1750	364	384.00	403.00	13.00	5.00	5¾	1⅞	418	50.6
20	1160	404	419.00	440.00	15.00	5.00	6½	2⅛	643	52.5
20	870	405	496.00	521.00	15.00	5.00	6½	2⅛	733	54.4
20	690	445	635.00	667.00	19.00	7.00	7¼	2⅜	1042	59.8
20	580	504	685.00	719.00	19.00	8.00	8 1/16	2⅝	1400	....
25	1750	365	432.00	454.00	13.00	5.00	5¾	1⅞	536	62.9
25	1160	405	476.00	500.00	15.00	5.00	6½	2⅛	733	67.4
25	870	444	548.00	575.00	17.00	7.00	7¼	2⅜	941	66.6
25	690	504	701.00	736.00	19.00	8.00	8 1/16	2⅝	1400	74.8
25	580	505	759.00	797.00	22.00	16.00	8 13/16	2⅞	1539	76.8
30	1750	405	478.00	502.00	15.00	5.00	6½	2⅛	733	74.2
30	1160	444	525.00	551.00	17.00	7.00	7¼	2⅜	941	78.6
30	870	445	606.00	636.00	19.00	7.00	7¼	2⅜	1042	80.6
30	690	505	759.00	797.00	22.00	16.00	8 13/16	2⅞	1539	91.6
30	580	750C	825.00	866.00	22.00	18.00	9¾	3⅜	2380	90.6

*Ampere rating is for 220 volts; for 110 volts double the amperes given, and for 440 volts use ½ the amperes given for 220 volts. For 550 volts use ⅖ of amperes given for 220 volts.

WESTINGHOUSE POLYPHASE INDUCTION MOTORS

TYPE CW WOUND-ROTOR MOTORS (Continued)

For General Purpose Applications—Constant and Varying Speed—Cont. Rtd. 40°C. Open—60 Cycles—2 and 3-Phase—220, 440 and 550 Volts

			Price Motor Only		Add For		Shaft Dimensions			
Hp.	Approx. F.L. Rpm.	Frame	Sealed Sleeve Bearing	Ball Bearing	Rails	Pulley	Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	Approx. F.L. Amps.■ 3-Ph. 220 V.
40	1750	444	$566.00	$594.00	$17.00	$7.00	6½	2⅜	941	96.0
40	1160	445	617.00	648.00	19.00	7.00	6½	2⅜	1042	103.8
40	870	504	699.00	734.00	19.00	8.00	8 1/16	2⅝	1400	112.4
40	690	607	864.00	907.00	22.00	18.00	8 13/16	2⅞	1705	117.0
40	580	752C	944.00	991.00	24.00	25.00	9¾	3⅜	2380	120.5
50	1750	445S	643.00	675.00	*	*	4⅜	2⅛	1042	118.4
50	1160	504	703.00	738.00	19.00	8.00	8 1/16	2⅝	1400	132.0
50	870	505	789.00	828.00	22.00	16.00	8 13/16	2⅞	1539	148.0
50	690	752C	961.00	1009.00	24.00	25.00	9¾	3⅜	2380	187.0
50	580	754C	1050.00	1103.00	25.00	25.00	9¾	3⅜	2380	158.0
50	490	774C	1153.00	1211.00	25.00	25.00	9¾	3⅜	2800	-------
60	1750	504S	719.00	755.00	*	*	4 7/16	2⅛	1400	139.5
60	1160	505	791.00	831.00	22.00	16.00	8 13/16	2⅞	1539	146.0
60	870	607	865.00	908.00	24.00	25.00	8 13/16	2⅞	1705	151.2
60	690	754C	1053.00	1106.00	25.00	25.00	9¾	3⅜	2380	161.5
60	580	774C	1152.00	1210.00	27.00	34.00	9¾	3⅜	2800	173.0
60	490	854C	1260.00	1323.00	27.00	34.00	13	3⅞	3360	-------
75	1750	505S	825.00	866.00	*	*	4 7/16	2⅛	1539	180.0
75	1160	607	909.00	954.00	22.00	18.00	8 13/16	2⅞	1705	186.0
75	870	752C	973.00	1022.00	25.00	25.00	9¾	3⅜	2380	186.6
75	690	754C	1180.00	1239.00	27.00	34.00	9¾	3⅜	2380	197.0
75	580	774C	1293.00	1358.00	27.00	34.00	9¾	3⅜	2800	208.0
75	490	874C	1407.00	1477.00	27.00	34.00	13	3⅞	3900	-------
100	1750	607S	993.00	1043.00	*	*	4 7/16	2⅛	1705	229.0
100	1160	752S	1100.00	1155.00	*	*	5¼	2⅝	2380	238.0
100	870	754C	1130.00	1187.00	27.00	34.00	9¾	3⅜	2380	249.0
100	690	854C	1375.00	1444.00	27.00	34.00	13	3⅞	3360	254.0
100	580	856C	1509.00	1584.00	70.00	46.00	13	3⅞	3360	264.0
100	490	874C	1630.00	1712.00	70.00	46.00	13	3⅞	3900	-------
125	1750	761S	1151.00	1209.00	*	*	5¼	2⅝	2558	286.0
125	1160	772S	1284.00	1348.00	*	*	5¼	2⅝	2805	299.0
125	870	854C	1413.00	1484.00	27.00	34.00	13	3⅞	3360	301.0
125	690	856C	1550.00	1628.00	70.00	46.00	13	3⅞	3360	315.0
125	580	874C	1704.00	1789.00	70.00	46.00	13	3⅞	3900	341.0
125	490	32A	1845.00	1937.00	76.00	67.00	14⅞	4.375	4060	-------
150	1750	771.1S	1302.00	1367.00	*	*	5¼	2⅝	2805	344.0
150	1160	772S	1476.00	1550.00	*	*	5¼	2⅝	2805	352.0
150	870	870S	1594.00	1674.00	*	*	6¾	3⅜	3861	366.0
150	690	874C	1717.00	1803.00	70.00	46.00	13	3⅞	3900	378.0
150	580	876C	1897.00	1992.00	76.00	67.00	13	3⅞	3900	416.0
150	490	32B	2033.00	2135.00	83.00	67.00	14⅞	4.375	4200	-------
200	1750	871S	1592.00	1672.00	*	*	6¾	3⅜	3861	454.0
200	1160	873S	1718.00	1804.00	*	*	6¾	3⅜	3861	458.0
200	870	874S	1888.00	1982.00	*	*	6¾	3⅜	3861	475.0
200	690	32B	2098.00	2203.00	76.00	67.00	14⅞	4.375	4200	-------
200	580	32B	2254.00	2367.00	83.00	67.00	14⅞	4.375	4200	-------
200	490	34A	2409.00	2529.00	91.00	85.00	14⅞	4.375	5200	-------

*For direct connection only.

■Ampere rating is for 220 volts; for 110 volts double the amperes given, and for 440 volts use ½ the amperes given for 220 volts. For 550 volts use ⅖ of amperes given for 220 volts.

WESTINGHOUSE WOUND-ROTOR INDUCTION MOTORS

TYPE CI INTERMITTENT RATED WOUND-ROTOR MOTORS

60 Cycles—2 and 3-Phase, 220 and 440 Volts—3-Phase, 550 Volts

Motors on Frame 774-D and smaller are suitable for gear drive as two bearing motors. Frames 854-C and larger require 3 bearing parts for gear drive.

				§PRICE OPEN MOTOR		ADD FOR SPECIAL SHAFT				ADD FOR Class 15340 Brakes¶			
Hp.	Approx. F.L. Rpm.	Frame	Primary Amps. 440 V.	Sleeve Bear.	Ball Bear.	Both Ends Straight	Drive Ends Tapered	One End Straight One End Tapered	Both Ends Tapered	Frame No.	Floor Mtg.	Motor Mtd.	Approx. Shpg. Wt. Lbs.
*½-Hour 50°C. Rise Open—220-440-550 Volts													
¾	1080	204	....	$109.00	$114.00	$ 2.00	$ 2.00	$ 3.00	$ 3.00	AI32	$ 28.00	$ 38.00	105
¾	815	204	....	125.00	131.00	2.00	2.00	3.00	3.00	AI32	28.00	38.00	105
1	1650	204	....	102.00	107.00	2.00	2.00	3.00	3.00	AI32	28.00	38.00	105
1	1080	204	....	116.00	122.00	2.00	2.00	3.00	3.00	AI32	28.00	38.00	105
1	815	224	....	133.00	140.00	3.00	3.00	4.00	5.00	AI32	28.00	38.00	145
1½	1650	204	....	117.00	123.00	2.00	2.00	3.00	3.00	AI32	28.00	38.00	105
1½	1080	204	....	133.00	140.00	2.00	2.00	3.00	3.00	AI32	28.00	38.00	105
1½	815	225	....	157.00	165.00	3.00	3.00	4.00	5.00	AI32	28.00	38.00	165
2	1650	224	....	125.00	131.00	3.00	3.00	4.00	5.00	AI32	28.00	38.00	145
2	1080	225	....	139.00	146.00	3.00	3.00	4.00	5.00	AI32	28.00	38.00	165
2	845	254	....	162.00	170.00	3.00	3.00	4.00	5.00	AI431	48.00	66.00	185
3	1695	225	6.0	140.00	147.00	3.00	3.00	4.00	5.00	AI32	28.00	38.00	165
3	1115	254	6.3	156.00	164.00	3.00	3.00	4.00	5.00	AI431	48.00	66.00	185
3	860	284	6.0	182.00	191.00	4.00	5.00	6.00	7.00	AI431	48.00	66.00	256
5	1695	254	7.9	155.00	163.00	3.00	3.00	4.00	5.00	AI431	48.00	66.00	185
5	1115	284	9.9	189.00	198.00	4.00	5.00	6.00	7.00	AI431	48.00	66.00	256
5	860	324	8.5	220.00	231.00	5.00	6.00	7.00	9.00	AI631	77.00	102.00	345
7½	1700	284	12.5	188.00	197.00	4.00	5.00	6.00	7.00	AI431	48.00	66.00	256
7½	1140	324	12.0	220.00	231.00	5.00	6.00	7.00	9.00	AI631	77.00	102.00	345
7½	865	326	14.3	265.00	278.00	5.00	6.00	7.00	9.00	AI631	77.00	102.00	385
7½	680	364	16.5	313.00	329.00	....	....	....	....	AI631	77.00	102.00	418
10	1740	324	13.5	217.00	228.00	5.00	6.00	7.00	9.00	AI631	77.00	102.00	345
10	1140	326	14.5	253.00	266.00	5.00	6.00	7.00	9.00	AI631	77.00	102.00	384
10	865	364	16.5	313.00	329.00	7.00	9.00	10.00	13.00	AI631	77.00	102.00	418
10	680	365	21.0	374.00	393.00	....	....	....	....	AI831	168.00	208.00	536
15	1740	326	19.8	268.00	281.00	5.00	6.00	7.00	9.00	AI631	77.00	102.00	384
15	1140	364	20.7	318.00	334.00	7.00	9.00	10.00	13.00	AI631	77.00	102.00	418
15	865	365	25.0	367.00	385.00	7.00	9.00	10.00	13.00	AI831	168.00	208.00	536
15	680	404	26.5	430.00	452.00	....	....	....	....	AI831	168.00	208.00	643
20	1740	364	25.5	309.00	324.00	7.00	9.00	10.00	13.00	AI631	77.00	102.00	418
20	1140	365	26.3	375.00	394.00	7.00	9.00	10.00	13.00	AI831	168.00	208.00	536
20	865	404	33.0	417.00	438.00	9.00	11.00	13.00	16.00	AI831	168.00	208.00	643
20	680	405	37.0	496.00	521.00	9.00	11.00	13.00	16.00	AI831	168.00	208.00	733
20	565	445	37.0	545.00	572.00	14.00	18.00	20.00	26.00	HI105	365.00	415.00	1042
25	1740	365	37.0	361.00	379.00	7.00	9.00	10.00	13.00	AI831	168.00	208.00	536
25	1140	404	34.0	417.00	438.00	9.00	11.00	13.00	16.00	AI831	168.00	208.00	643
25	865	405	43.0	473.00	497.00	9.00	11.00	13.00	16.00	AI831	168.00	208.00	733
25	680	444	43.0	552.00	580.00	14.00	18.00	20.00	26.00	HI105	365.00	415.00	941
25	565	505	43.0	622.00	653.00	16.00	21.00	23.00	30.00	HI105	365.00	415.00	1534
30	1740	405	16.0	398.00	418.00	9.00	11.00	13.00	16.00	AI831	168.00	208.00	733
30	1145	405	16.0	469.00	492.00	9.00	11.00	13.00	16.00	AI831	168.00	208.00	733
30	860	444	20.4	519.00	545.00	14.00	18.00	20.00	26.00	HI105	365.00	415.00	941
30	680	445	23.2	599.00	629.00	14.00	18.00	20.00	26.00	HI105	365.00	415.00	1042
30	575	750C	20.2	661.00	694.00	16.00	21.00	23.00	30.00	HI105	365.00	415.00	2430
40	1740	405	55.0	467.00	490.00	9.00	11.00	13.00	16.00	AI831	168.00	208.00	733
40	1150	444	55.0	530.00	557.00	14.00	18.00	20.00	26.00	HI105	365.00	415.00	940
40	865	445	62.0	588.00	617.00	14.00	18.00	20.00	26.00	HI105	365.00	415.00	1042

§Shaft Extensions—Standard with single straight shaft extension. Since motors built in frames 254 and larger are usually furnished with brakes, frames 254 to 607 have double straight shaft extensions, while 700 to 800 frames have double tapered shaft extensions as standard. 225 and smaller frames are furnished as standard with single straight shaft extensions.

¶Brakes are listed for intermittent duty with troque equal to full load motor torque.
For quotations on 2200 volt motors and control, refer to us.

*For 1 hour 50°C. open ratings to 10 Hp. inclusive use price of next larger ½ hour open rating of same speed. This applies to 60 cycle motors only.

WESTINGHOUSE WOUND-ROTOR INDUCTION MOTORS

TYPE CI INTERMITTENT RATED WOUND-ROTOR MOTORS—(Continued)

60 Cycles—3-Phase, 220, 440 and 550 Volts

				§PRICE OPEN MOTOR		ADD FOR SPECIAL SHAFT				ADD FOR Class 15340 Brakes¶			
Hp.	Approx. F.L. Rpm.	Frame	Primary Amps. 440 V.	Sleeve Bear.	Ball Bear.	Both Ends Straight	Drive Ends Tapered	One End Straight One End Tapered	Both Ends Tapered	Frame No.	Floor Mtg.	Motor Mtd.	Approx. Shpg. Wt. Lbs.
1 Hour 50°C. Rise Open—220-440-550 Volts													
40	680	504	75.5	$676.00	$710.00	$16.00	$21.00	$23.00	$30.00	HI105	$365.00	$415.00	1400
40	575	754C	65.0	741.00	778.00	17.00	21.00	24.00	31.00	HI105	365.00	415.00	2430
50	1740	444	67.0	531.00	558.00	14.00	18.00	20.00	26.00	HI105	365.00	415.00	941
50	1150	445	67.0	599.00	629.00	14.00	18.00	20.00	26.00	HI105	365.00	415.00	1042
50	865	504	71.5	643.00	675.00	16.00	21.00	23.00	30.00	HI105	365.00	415.00	1400
50	700	U505	83.0	725.00	761.00	17.00	21.00	24.00	31.00	HI105	365.00	415.00	1534
50	580	774C	76.5	814.00	855.00	19.00	24.00	27.00	35.00	HI135	490.00	555.00	2856
60	1740	U445	77.0	592.00	622.00	14.00	18.00	20.00	26.00	HI105	365.00	415.00	1042
60	1150	504	77.0	664.00	697.00	16.00	21.00	23.00	30.00	HI105	365.00	415.00	1400
60	865	U505	89.0	712.00	748.00	16.00	21.00	23.00	30.00	HI105	365.00	415.00	1534
60	700	U505	90.0	821.00	862.00	19.00	24.00	27.00	35.00	HI135	490.00	555.00	1600
60	580	774C	90.0	884.00	928.00	19.00	24.00	27.00	35.00	HI135	490.00	555.00	2856
220 Volts													
75	1150	505	....	744.00	781.00	17.00	21.00	24.00	31.00	HI105	365.00	415.00	1600
75	875	U505	....	809.00	849.00	19.00	24.00	27.00	35.00	HI135	490.00	555.00	1600
75	695	754C	....	912.00	958.00	19.00	24.00	27.00	35.00	HI135	490.00	555.00	1705
75	580	774D	....	992.00	1042.00	19.00	24.00	27.00	35.00	HI167	490.00	555.00	2856
440-550 Volts													
75	1160	505	....	744.00	781.00	17.00	21.00	24.00	31.00	HI105	365.00	415.00	1600
75	875	U505	113.0	809.00	849.00	19.00	24.00	27.00	35.00	HI135	490.00	555.00	1600
75	695	754C	125.0	912.00	958.00	19.00	24.00	27.00	35.00	HI135	490.00	555.00	1705
75	580	774D	121.0	992.00	1042.00	19.00	24.00	27.00	35.00	HI167	490.00	555.00	2856
100*	1160	607	134.0	872.00	916.00	19.00	24.00	27.00	35.00	HI135	490.00	555.00	1705
100*	870	752C	134.0	977.00	1026.00	19.00	24.00	27.00	35.00	HI167	490.00	555.00	2430
100*	685	754D	148.0	1094.00	1149.00	22.00	27.00	31.00	40.00	HI167	490.00	555.00	2450
100*	580	856C	139.0	1147.00	1204.00	22.00	27.00	31.00	40.00	HI198	755.00	845.00	3427
125*	1160	752C	168.0	996.00	1046.00	19.00	24.00	27.00	35.00	HI135	490.00	555.00	2430
125*	870	754C	168.0	1152.00	1210.00	22.00	27.00	31.00	40.00	HI167	490.00	555.00	2430
125*	680	774D	177.0	1284.00	1348.00	22.00	27.00	31.00	40.00	HI198	755.00	845.00	2856
125*	580	856C	183.0	1360.00	1428.00	22.00	27.00	31.00	40.00	HI198	755.00	845.00	3427
150*	870	854C	188.0	1320.00	1386.00	22.00	27.00	31.00	40.00	HI198	755.00	845.00	3427
150*	690	856C	194.0	1445.00	1516.00	22.00	27.00	31.00	40.00	HI198	755.00	845.00	3450
150*	580	874C	216.0	1569.00	1647.00	24.00	29.00	34.00	43.00	HI198	755.00	845.00	3475
200*	1160	772D	250.0	1392.00	1462.00	22.00	27.00	31.00	40.00	HI198	755.00	845.00	2856
200*	870	870C	250.0	1654.00	1737.00	24.00	29.00	34.00	43.00	HI198	755.00	845.00	3931
200*	690	874C	260.0	1793.00	1883.00	24.00	29.00	34.00	43.00	HI198	755.00	845.00	3960
200*	580	938A	265.0	1952.00	‡	24.00	29.00	34.00	43.00	HI239	1258.00	....	4202
200*	500	954A	275.0	2261.00	‡	24.00	29.00	34.00	43.00	HI239	1258.00	....	4400

*220 volt motor same price as 440 volt.

‡Refer to us for quotation.

§Shaft Extension — Standard with single straight shaft extension. Since motors built in frames 254 and larger are usually furnished with brakes, frames 254 to 607 have double straight shaft extensions, while 700 and 800 frames have double tapered shaft extensions as standard. 225 and smaller frames are furnished as standard with single straight shaft extensions.

¶Brakes are listed for intermittent duty with torque equal to full load motor torque.

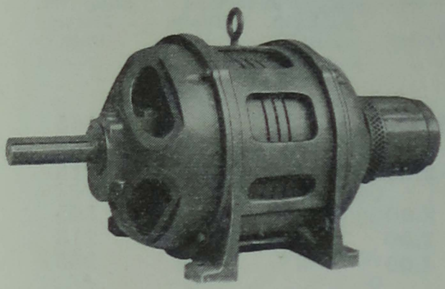
For quotations on 2200 volt motors and control, refer to us.

WESTINGHOUSE POLYPHASE MOTORS

TYPE G HIGH SPEED GENERAL PURPOSE SYNCHRONOUS MOTORS

30 to 200 H.P.—100% Power Factor
20 to 150 H.P.— 80% Power Factor
1800 R.P.M. to 514 R.P.M. Inclusive

220, 440, 550 and 2200 Volts—2 and 3-Phase, 60 Cycles—1800, 1200, 900, 720, 600 and 514 R.P.M.



Synchronous motors (synchronous condensers) are used where constant speed and an economical method of power-factor-correction are desired.

High speed synchronous motors are designed for all general industrial and pumping applications, except where excessive torques or variable speeds are required or heavy inertia loads are to be accelerated in starting.

Of the high speed synchronous motors, there are two general classes: General Purpose, for ratings up to and including 200 hp., and the Large Synchronous motors, for ratings above 200 hp. Both are standard at 80 and 100 per cent power factor. The 80 per cent power factor type is used where corrective power factor is mandatory.

The general-purpose synchronous motors have starting characteristics similar to the squirrel-cage induction motors and, in general, can be applied to the same applications. These motors are particularly adaptable for full voltage starting because of their relatively low starting current. For 1800 r.p.m., 4 pole motors, slight changes are necessary for full voltage starting.

When using reduced voltage for starting, the starting torque varies as the square of the voltage applied. The pull-in torque value of the motor is obtained by transferring from low to full voltage before the field circuit is closed. Reduced voltage starting is recommended where low inrush of current is desired and the starting torque available is ample for the application.

The frames and mechanical parts of these general purpose motors are the same as used on the induction motors, making the construction and general appearance similar to that type of motor.

General-Purpose synchronous motors have Sealed-Sleeve-Bearings for long life and freedom from maintenance troubles—seal dust out and oil in.

These motors may be provided with mechanical modifications such as enclosing covers, vertical and ball bearing parts, etc., to meet various special applications. They may be used for belted, coupled, or geared drives.

Large High Speed, and all Low Speed synchronous, motors have definite advantages in first cost and performance. With proper consideration of the torques required, these motors can be successfully applied to as wide a range of applications as general purpose synchronous motors. Low Speed synchronous motors are particularly adaptable for direct coupling to the driven machine eliminating gears, belts or other forms of speed reducing apparatus.

Full information and prices on request.

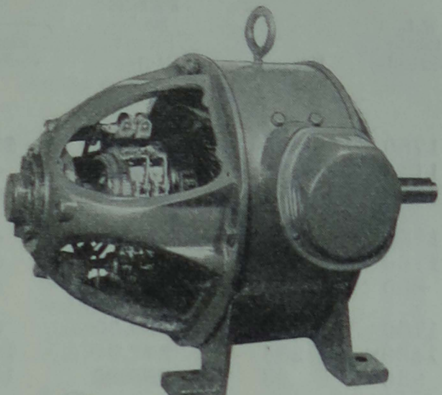
WESTINGHOUSE MOTORS

TYPE SK DIRECT-CURRENT MOTORS

Constant, Variable and Adjustable Speeds

Shunt, Compound and Series Wound

115, 230 and 550 Volts—½ to 200 H.P. and Larger



Type SK Motor

For constant, adjustable and variable-speed applications. Used for continuous or intermittent service on such drives as machine tools, pumps, printing presses, cold rolls, paper machines, fans, blowers, etc.

On peak loads, series motors draw less current from the line than shunt-wound motors and, for the same current values, develop somewhat higher starting and maximum torques. Used in varying speed applications, the speed varies with the load over a wide range. Load must never decrease below 25% of normal load while operating, as speed of motor may become excessive at lighter loads. This feature makes it necessary that the load be connected at all times, and the driven machine be securely coupled or geared to the motor.

The forged open-hearth steel frame has uniform magnetic flux which feature assures the same speed for different motors of the same rating. A series stabilizing winding on shunt wound motors maintains stability at all speeds and loads. Properly proportioned commutating poles, fixed position of the brushes, a large number commutator bars and proper quality of brush carbon provide excellent commutation. Motor operates equally well in either direction without the necessity of adjusting position of brushes.

The well-known Sealed Sleeve Bearings keep the oil out of the winding and dust out of the bearings. They provide a film of oil between bearing surface and shaft which absorbs shocks and vibrations produced by the driven machinery.

The wide, spreading forged base feet provide a strong and dependable foundation. Axle steel shaft is of ample diameter to prevent bending under the heaviest loads.

Armature coils are insulated with amber mica —the best material for this purpose.

Directed circulation assures large volumes of cool air to be driven into the motor and heated air to be driven out of the motor.

Mechanical modifications are available by which these motors are made suitable for various installations, such as drip-proof, totally-enclosed, force ventilated, 3-bearing marine type, ball or roller bearings, vertical, etc.

WESTINGHOUSE DIRECT-CURRENT MOTORS

TYPE SK CONSTANT-SPEED MOTORS

Open—Horizontal—Two-Sealed, Sleeve-Bearing—Continuous Rated 40° C.

115 and 230 Volts

Hp.	F.L. Basic Speed	Frame	PRICE Bare Shunt Motor	PRICE ADDITIONS			Shaft Dimensions		Approx. Shpg. Wt. Motor Only	F.L. Amps. Shunt Wound
				Series or Compound	Rails	Pulley	Lgth. (N)	Diam. (U)		
115 Volts										
2	1750	225	$104.00	$2.00	$6.00	$2.00	3⅛	1	165	16.0
2	1150	F225	129.00	4.00	6.00	2.00	3⅛	1	165	16.2
2	850	254	200.00	6.00	6.00	2.00	3½	1⅛	215	16.0
3	1750	F225	128.00	4.00	6.00	2.00	3⅛	1	165	23.0
3	1150	254	195.00	6.00	6.00	2.00	3½	1⅛	215	26.0
3	850	284	236.00	6.00	10.00	4.00	3⅞	1¼	285	24.0
5	1750	254	203.00	6.00	6.00	2.00	3½	1⅛	215	40.0
5	1150	284	247.00	10.00	10.00	4.00	3⅞	1¼	285	40.0
5	850	43	298.00	10.00	15.00	4.00	4¾	1⅝	490	36.6
7½	1750	284	246.00	10.00	10.00	4.00	3⅞	1¼	285	56.3
7½	1150	43	300.00	10.00	15.00	4.00	4¾	1⅝	490	56.4
7½	850	63	358.00	10.00	15.00	5.00	6	1¾	580	56.0
10	1750	43	282.00	10.00	15.00	4.00	4¾	1⅝	490	75.9
10	1150	63	345.00	10.00	15.00	5.00	6	1¾	580	75.4
10	850	83	411.00	10.00	15.00	5.00	6¼	1⅞	820	75.0
15	1750	63	344.00	10.00	15.00	5.00	6	1¾	580	112.0
15	1150	83	422.00	10.00	15.00	5.00	6¼	1⅞	820	113.0
15	850	93	506.00	16.00	18.00	5.00	6¾	2	918	112.0
20	1750	83	398.00	10.00	15.00	5.00	6¼	1⅞	820	150.0
20	1150	93	492.00	16.00	18.00	5.00	6¾	2	918	148.0
20	850	103	598.00	30.00	24.00	5.00	6¾	2⅛	1090	150.0
20	575	123	805.00	30.00	24.00	7.00	7 9/16	2⅜	1420	150.0
25	1750	93	448.00	16.00	18.00	5.00	6¾	2	918	180.0
25	1150	103	559.00	16.00	18.00	5.00	6¾	2⅛	1090	180.0
25	850	113	685.00	30.00	24.00	7.00	7¼	2¼	1185	185.0
25	575	133	924.00	30.00	24.00	8.00	8¼	2⅝	1825	184.0
30	1750	93	494.00	16.00	18.00	5.00	6¾	2	918	218.0
30	1150	113	621.00	30.00	24.00	7.00	7¼	2¼	1185	217.5
30	850	123	764.00	30.00	24.00	7.00	7 9/16	2⅜	1420	218.0
30	575	143	1022.00	30.00	24.00	16.00	9	2⅞	2035	218.0
230 Volts										
2	1750	225	$104.00	$4.00	$6.00	$2.00	3⅛	1	165	8.0
2	1150	F225	129.00	4.00	6.00	2.00	3⅛	1	165	8.0
2	850	254	200.00	6.00	6.00	2.00	3½	1⅛	215	8.0
3	1750	F225	128.00	4.00	6.00	2.00	3⅛	1	165	11.8
3	1150	254	195.00	6.00	6.00	2.00	3½	1⅛	215	12.6
3	850	284	236.00	6.00	10.00	4.00	3⅞	1¼	285	12.6
5	1750	254	203.00	6.00	6.00	2.00	3½	1⅛	215	20.0
5	1150	284	247.00	10.00	10.00	4.00	3⅞	1¼	285	20.0
5	850	43	298.00	10.00	15.00	4.00	4¾	1⅝	490	19.1
7½	1750	284	246.00	10.00	10.00	4.00	3⅞	1¼	285	29.0
7½	1150	43	300.00	10.00	15.00	4.00	4¾	1⅝	490	28.2
7½	850	63	358.00	10.00	15.00	5.00	6	1¾	580	29.0
10	1750	43	282.00	10.00	15.00	4.00	4¾	1⅝	490	37.5
10	1150	63	345.00	10.00	15.00	5.00	6	1¾	580	37.5
10	850	83	411.00	10.00	15.00	5.00	6¼	1⅞	820	38.0

(Continued on Following Page)

Note: Ball or roller bearings can be furnished at an addition of 5% to bare 230 volt motor price, before any modification additions have been made. Minimum addition price **$4.00.**

Series motors are not recommended for belted service.

WESTINGHOUSE DIRECT-CURRENT MOTORS

TYPE SK CONSTANT-SPEED MOTORS (Continued)

Open—Horizontal—Two-Sealed, Sleeve-Bearing—Continuous Rated 40° C.

230 and 550 Volts

230 Volts (Continued)

Hp.	F.L. Basic Speed	Frame	PRICE Bare Shunt Motor	PRICE ADDITIONS Series or Compound	Rails	Pulley	Shaft Dimensions Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	F.L. Amps. Shunt Wound
15	1750	63	**$344.00**	**$10.00**	**$15.00**	**$5.00**	6	1¾	580	55.6
15	1150	83	**422.00**	**10.00**	**15.00**	**5.00**	6¼	1⅞	820	55.3
15	850	93	**506.00**	**16.00**	**18.00**	**5.00**	6¾	2	918	56.0
20	1750	83	**398.00**	**10.00**	**15.00**	**5.00**	6¼	1⅞	820	75.0
20	1150	93	**492.00**	**16.00**	**18.00**	**5.00**	6¾	2	918	74.0
20	850	103	**598.00**	**30.00**	**24.00**	**5.00**	6¾	2⅛	1090	73.5
20	575	123	**805.00**	**30.00**	**24.00**	**7.00**	7$\frac{9}{16}$	2⅜	1420	74.0
25	1750	83	**448.00**	**16.00**	**18.00**	**5.00**	6¼	1⅞	918	91.5
25	1150	103	**559.00**	**16.00**	**18.00**	**5.00**	6¾	2⅛	1090	91.7
25	850	113	**685.00**	**30.00**	**24.00**	**7.00**	7¼	2¼	1185	92.0
25	575	133	**924.00**	**30.00**	**24.00**	**8.00**	8¼	2⅝	1825	92.0
30	1750	93	**494.00**	**16.00**	**18.00**	**5.00**	6¾	2	918	108.0
30	1150	113	**621.00**	**30.00**	**24.00**	**7.00**	7¼	2¼	1185	108.0
30	850	123	**764.00**	**30.00**	**24.00**	**7.00**	7$\frac{9}{16}$	2⅜	1420	108.0
30	575	143	**1022.00**	**30.00**	**24.00**	**16.00**	9	2⅞	2035	108.0

550 Volts

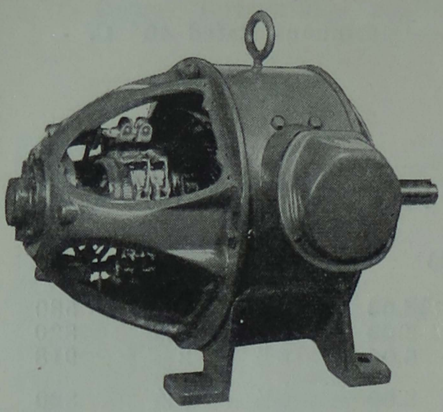
Hp.	F.L. Basic Speed	Frame	PRICE Bare Shunt Motor	PRICE ADDITIONS Series or Compound	Rails	Pulley	Shaft Dimensions Lgth. (N)	Diam. (U)	Approx. Shpg. Wt. Motor Only	F.L. Amps. Shunt Wound
2	1750	225	**$109.00**	**$2.00**	**$6.00**	**$2.00**	3⅛	1	165	3.4
2	1150	F225	**135.00**	**4.00**	**6.00**	**2.00**	3⅛	1	165	3.4
2	850	254	**210.00**	**6.00**	**6.00**	**2.00**	3½	1⅛	215	3.4
3	1750	F225	**134.00**	**4.00**	**6.00**	**2.00**	3⅛	1	165	5.1
3	1150	225	**205.00**	**6.00**	**6.00**	**2.00**	3½	1⅛	215	5.1
3	850	284	**248.00**	**6.00**	**10.00**	**4.00**	3⅞	1¼	285	5.2
5	1750	254	**213.00**	**6.00**	**6.00**	**2.00**	3½	1⅛	215	8.0
5	1150	284	**259.00**	**10.00**	**10.00**	**4.00**	3⅞	1¼	285	8.1
5	850	43	**313.00**	**10.00**	**15.00**	**4.00**	4¾	1⅝	490	8.1
7½	1750	284	**258.00**	**10.00**	**10.00**	**4.00**	3⅞	1¼	285	12.0
7½	1150	43	**315.00**	**10.00**	**15.00**	**4.00**	4¾	1⅝	490	11.8
7½	850	63	**376.00**	**10.00**	**15.00**	**5.00**	6	1¾	580	12.0
10	1750	43	**296.00**	**10.00**	**15.00**	**4.00**	4¾	1⅝	490	15.6
10	1150	63	**362.00**	**10.00**	**15.00**	**5.00**	6	1¾	580	15.4
10	850	83	**432.00**	**16.00**	**18.00**	**5.00**	6¼	1⅞	820	15.5
15	1750	63	**361.00**	**10.00**	**15.00**	**5.00**	6	1¾	580	23.2
15	1150	83	**443.00**	**16.00**	**18.00**	**5.00**	6¼	1⅞	820	23.0
15	850	93	**531.00**	**16.00**	**18.00**	**5.00**	6¾	2	918	23.0
20	1750	83	**418.00**	**10.00**	**15.00**	**5.00**	6¼	1⅞	820	30.4
20	1150	93	**517.00**	**16.00**	**18.00**	**5.00**	6¾	2	918	30.3
20	850	103	**628.00**	**30.00**	**24.00**	**5.00**	6¾	2⅛	1090	30.5
25	1750	83	**470.00**	**16.00**	**18.00**	**5.00**	6¼	1⅞	918	38.1
25	1150	103	**587.00**	**30.00**	**24.00**	**5.00**	2⅛	6¾	......	38.1
25	850	123	**719.00**	**30.00**	**24.00**	**7.00**	2¼	6¾	......	38.3
25	575	133	**970.00**	**30.00**	**24.00**	**8.00**	8¼	2⅝	1825	38.5
30	1750	93	**519.00**	**16.00**	**18.00**	**5.00**	6¾	2	918	45.5
30	1150	113	**652.00**	**30.00**	**24.00**	**7.00**	7¼	2¼	1185	46.0
30	850	123	**802.00**	**30.00**	**24.00**	**7.00**	7$\frac{9}{16}$	2⅜	1420	46.0
30	575	143	**1073.00**	**39.00**	**36.00**	**16.00**	9	2⅞	2035	46.0

Note: Ball or roller bearings can be furnished at an addition of 5% to bare 230 volt motor price, before any modification additions have been made. Minimum addition price **$4.00.**

Series motors are not recommended for belted service.

WESTINGHOUSE GENERATORS

TYPE SK—DIRECT CURRENT—COUPLED AND BELTED TYPES



Type SK generators are designed for supplying electrical energy in places where an independent source is desired. They also find a wide use as exciters, and for charging batteries.

Standard generators, as listed, are two sealed-sleeve bearing open type, with commutating poles. Frames 204 to 225 have two main poles. Frames 254 to 163 have four main poles.

Standard voltages for direct-current generators are 125 and 250 volts at full load. For supplying power to 115 volt motors or other 115 volt electrical apparatus, a generator voltage of 125 volts at full load is recommended, and for supplying power to 230 volt motors or to 230 volt electrical apparatus, a generator voltage of 250 volts at full load is recommended.

It is of prime importance to specify on the order complete characteristics of the other generators where parallel operation is required. There are very few instances where a generator cannot be paralleled with another generator. On the other hand, there are very few generators that will parallel without adjustment after installation, except shunt-wound generators. Compound-wound generators, even when adjusted at the works, will seldom parallel without additional adjustment when installed. The reason for this is that before two or more generators will parallel, it is necessary to have the series field circuit carry current proportionate to the rating of the generator. This means that the overall resistance of the series fields, their shunts and connections to them, must be in inverse proportion to the rating of the generator. The resistance of series fields and their shunts are low, so that any connections made are likely to vary the overall resistance of the circuit which prevents the generator from paralleling successfully without adjustment.

It is also important to know whether or not a generator is to be used with a vibrating type voltage regulator. We recommend a shunt-wound generator be used with a vibrating type voltage regulator. The shunt-wound generator is less sluggish than the compound-wound and responds more rapidly to the regulator action.

125-250 Volts—40° C. Continuous Rated
Open Type—Shunt or Compound-Wound

			PRICE GENERATOR With Field Rheostat		ADD FOR		Approx. Shpg. Wt. Bare Gen.
Kw.	Rpm.†	Frame	125 V.	250 V.	Rails°	Pulley	
½	1150	204	$104.	$104.	$6.	$2.	95
¾	1750	204	104.	104.	6.	2.	105
¾	1450	204	111.	111.	6.	2.	105
¾	1150	224	120.	120.	6.	2.	145
¾	850	225	133.	133.	6.	2.	165
1	3600*	204	100.	100.	..	..	105
1	1750	204	116.	116.	6.	2.	105
1	1450	224	121.	121.	6.	2.	145
1	1150	225	136.	136.	6.	2.	165
1	850	F225	208.	208.	6.	2.	190
1½	3600*	204	115.	115.	..	..	105
1½	1750	225	133.	133.	6.	2.	165
1½	1450	225	144.	144.	6.	2.	165
1½	1150	F225	157.	157.	6.	2.	190
1½	850	284	229.	229.	10.	4.	285
2	3600*	204	129.	129.	..	..	105
2	1750	F225	150.	150.	6.	2.	190
2	1450	254	215.	215.	7.	2.	215
2	1150	284	229.	229.	10.	2.	285
2	850	43	252.	252.	10.	4.	490
3	3600*	224	174.	174.	..	..	145
3	1750	254	229.	229.	7.	2.	215
3	1450	284	247.	247.	10.	4.	285
3	1150	284	265.	265.	10.	4.	285
3	850	43	299.	299.	15.	4.	490
3	700	53	348.	348.	15.	4.	540
5	3600*	254	296.	296.	....	..	215
5	1750	284	280.	280.	10.	4.	285
5	1450	43	300.	300.	10.	4.	490
5	1150	43	332.	332.	15.	4.	490
5	850	43	378.	378.	15.	5.	490
5	700	83	437.	437.	16.	5.	820
5	575	83	494.	494.	16.	5.	820
5	500	83	558.	558.	16.	5.	820
7½	3600*	284	393.	393.	....	..	285
7½	1750	43	332.	332.	15.	4.	490
7½	1450	53	362.	362.	15.	4.	540
7½	1150	53	402.	402.	15.	5.	540
7½	850	83	466.	466.	15.	5.	820
7½	700	83	535.	535.	16.	5.	820
7½	575	93	600.	600.	16.	5.	918
7½	500	103	678.	678.	24.	6.	1090
10	3600*	33	436.	436.	....	..	360
10	1750	43	380.	380.	15.	5.	490
10	1750	63	......	......	15.	5.	580
10	1450	63	414.	414.	15.	5.	580
10	1150	83	465.	465.	15.	5.	820
10	850	93	538.	538.	16.	5.	918
10	700	103	626.	626.	24.	6.	1090
10	575	103	697.	697.	24.	6.	1090
10	500	123	784.	784.	24.	8.	1420
15	3600*	53	506.	506.	....	..	540
15	1750	83	467.	467.	15.	5.	820
15	1450	83	511.	511.	16.	5.	820
15	1150	83	578.	578.	16.	5.	820
15	850	103	674.	674.	24.	6.	1090
15	700	113	770.	770.	24.	8.	1185
15	575	123	863.	863.	24.	8.	1420
15	500	133	968.	968.	30.	12.	1825

*Not recommended for belted service.

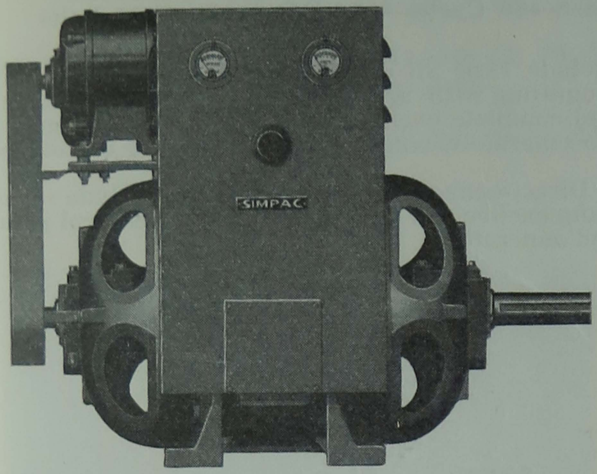
°Frames 204 to 284 inclusive are furnished with bedplates instead of rails.

†Belted speeds. Direct-connected machines will be rated at the corresponding synchronous speed.

WESTINGHOUSE GENERATORS

SIMPAC POWER UNIT

Regulated A.C. Generating Equipment



SIMPAC Unit Consisting of A.C. Generator, Belted Exciter, Regulator and Control

"Simpac" power is a simplified combination of standard alternating-current generating devices which individually have already met high standards of construction and satisfactory operation demanded of all Westinghouse generating equipment.

The single unit consists of a standard type G, A.C. generator, direct-current type SK exciter and control.

The exciter and control are mounted on the generator and all intra-unit-wiring between generator, regulator, exciter and control is completed at the factory.

Ease of installation and operation is apparent. The foot-mounted alternating-current generator must be bolted to bedplate for foundation, line leads and conduit connected to the convenient outlet provided in the control cabinet, prime mover hooked up and regulated and metered A.C. power is available.

There are two types of A.C. generators used for "Simpac" power.

18.7 Kv-a. and below, 4 pole, 1800 Rpm., and 12.5 Kv-a. and below, 6 pole, 1200 Rpm. are revolving armature machines. These ratings are close-regulating, having 10% inherent regulation at 80% PF. The use of a voltage regulator is unnecessary unless better than 10% regulation is required. The frame is rolled from open-hearth steel having good mechanical strength and excellent magnetic qualities.

Larger sizes are type G revolving field machines.

The A.C. generator line leads are brought out through the side of the generator frame directly into a recess in the lower part of the control cabinet. Knock-outs are provided in the side or bottom of the control cabinet and a flat cover plate, removable from the front of the control cabinet, permits easy access to leads for making line connections. All other connections through current transformers, meters, regulator, exciter and field resistance are wired at the factory.

The exciter is mounted on a fabricated steel shelf overhanging the front A.C. generator bracket and V-belted to the front shaft extension of the generator. Studs formed in the exciter feet and through the mounting plate permit easy belt adjustment by shifting the exciter position up or down. A sheet metal belt safety guard is provided over both pulleys and the exciter belts.

1800 Rpm. generators are supplied with overhung direct-connected exciter. Either belted or direct-connected exciters may be furnished on generators having speeds of 1200 Rpm. and slower.

The direct-connected exciter itself is of the well known type SK construction which has been a leader in the direct-current field for years. Such distinctive features as sealed sleeve bearings, mica insulation, vacuum impregnated field coils, direct air circulation and excellent commutation assure prolonged trouble-free operation.

The control cabinet is formed of heavy gauge sheet steel shaped to fit the top and side of the generator frame. The cabinet is bolted to the generator frame and is readily removable. Louvered openings provide necessary ventilation and drip-proof protection.

Within the cabinet is mounted a "Silverstat" direct and quick acting voltage regulator, a type NA-35 ammeter and voltmeter, type KO current transformer exciter field resistance with taps for shunt field adjustment.

For the 6.3, 9.4, 12.5 and 18.7 K-va., 4 pole, 1800 Rpm. and 6.3, 9.4 and 12.5 K-va., 6 pole, 1200 Rpm., revolving armature A.C. generators, the control consists of cabinet mounted on one side of the generator similar to the type G. Within the cabinet is mounted a type NA-35 voltmeter, self-contained ammeter and exciter field rheostat with operating shaft extending through the cabinet and the rheostat handle mounted on the outside. A voltage regulator is not used since the generators are designed with an inherent regulation of 10% at 80% power factor.

The "Silverstat" regulator is of the direct and quick acting rheostat type. Correction of voltage is obtained by the regulator element varying directly the regulating resistance in the exciter field circuit. The regulating resistance is entirely stationary, thus eliminating the complication involved where linkage and lever systems mechanically move the resistance assembly in order to vary its resistance (necessary with some types of regulators).

The few moving parts used are silver buttons supported by leaf type springs which provide a fixed and permanent axis that permits free action without the friction of pivots and bearings. These silver sleeve buttons are connected to successive steps on the regulating resistance.

This construction combined with extremely light weight moving parts, whose maximum travel is only a fraction of an inch, practically eliminates the time lag due to inertia and friction of moving parts.

The rated sensitivity of the type SRA "Silverstat" regulator is plus or minus 3% of normal voltage, for smaller ratings; and as low as plus or minus 1½% for larger ratings. Overall regulation involves not only regulator sensitivity but also the time constants of the generator and the character and magnitude of load changes.

WESTINGHOUSE GENERATORS

SIMPAC POWER UNIT

High-Speed Horizontal Engine-Driven A.C. Generators with Exciters, Regulators and Control Open 50° C. Rise—Sleeve Bearing—80% Pf.—3-Phase—60 Cycles—120/208, 240 or 480 Volts

Generator and Control price include 2 bracket bearing A.C. generator without damper windings, but with Silverstat regulator with voltage adjusting rheostat, exciter tapped field resistance, ammeter, voltmeter and current transformers. All control mounted in ventilated sheet metal cabinet, and completely wired to generator.

Exciter prices, where shown for belted service, include Type SK direct current exciter, necessary mounting with arrangement for belt adjustment, and complete exciter V-belt drive with belt guard. No separate wiring required for exciter or control.

Direct-connected exciter prices include overhung exciter and wiring of exciter to control panel and generator.

1800 RPM.

Kv-a.	Volts	Gen. Frame	Bare 2 Brg. Gen. with Control	ADD FOR			Exciter	
				Damper Windings	Rails	Flat Pulley	Belted	Direct-Connected
*3.75	120/208	284	**$356.00**	§	**$6.00**	**$2.00**	†	**$61.00**
*3.75	240 or 480	284	**380.00**	§	**6.00**	**2.00**	†	**61.00**
*6.25	120/208	33	**392.00**	§	**10.00**	**4.00**	†	**61.00**
*6.25	240 or 480	33	**416.00**	§	**10.00**	**4.00**	†	**61.00**
*9.4	120/208	63	**420.00**	§	**13.00**	**4.00**	†	**79.00**
*9.4	240 or 480	63	**444.00**	§	**13.00**	**4.00**	†	**79.00**
*12.5	120/208	63	**466.00**	§	**13.00**	**5.00**	†	**100.00**
*12.5	240 or 480	63	**490.00**	§	**13.00**	**5.00**	†	**100.00**
*18.7	120/208	93	**545.00**	§	**13.00**	**5.00**	†	**100.00**
*18.7	240 or 480	93	**569.00**	§	**13.00**	**5.00**	†	**100.00**
25	120/208	20–4	**790.00**	§	**13.00**	**5.00**	†	**100.00**
25	240 or 480	20–4	**710.00**	§	**13.00**	**5.00**	†	**100.00**
31.3	120/208	20–4	**855.00**	§	**15.00**	**5.00**	†	**100.00**
31.3	240 or 480	20–4	**775.00**	§	**15.00**	**5.00**	†	**100.00**
37.5	120/208	20–10	**931.00**	**$73.00**	**16.00**	**8.00**	†	**115.00**
37.5	240 or 480	20–10	**851.00**	**73.00**	**16.00**	**8.00**	†	**115.00**

1200 RPM.

Kv-a.	Volts	Gen. Frame	Bare 2 Brg. Gen. with Control	Damper Windings	Rails	Flat Pulley	Belted	Direct-Connected
*6.25	120/208	63	**457.00**	§	**13.00**	**4.00**	¶	**115.00**
*6.25	240 or 480	63	**481.00**	§	**13.00**	**4.00**	¶	**115.00**
*9.4	120/208	63	**486.00**	§	**13.00**	**5.00**	¶	**115.00**
*9.4	240 or 480	63	**510.00**	§	**13.00**	**5.00**	¶	**115.00**
*12.5	120/208	93	**539.00**	§	**13.00**	**5.00**	¶	**132.00**
*12.5	240 or 480	93	**563.00**	§	**13.00**	**5.00**	¶	**132.00**
18.7	120/208	20–4	**772.00**	§	**15.00**	**5.00**	**$160.00**	**132.00**
18.7	240 or 480	20–4	**692.00**	§	**15.00**	**5.00**	**160.00**	**132.00**
25	120/240	20–5	**825.00**	§	**15.00**	**5.00**	**160.00**	**149.00**
25	240 or 480	20–5	**745.00**	§	**15.00**	**5.00**	**160.00**	**149.00**
31.3	120/208	20–7	**863.00**	**73.00**	**17.00**	**7.00**	**183.00**	**173.00**
31.3	240 or 480	20–7	**783.00**	**73.00**	**17.00**	**7.00**	**183.00**	**173.00**
37.5	120/208	24–6	**902.00**	**73.00**	**19.00**	**8.00**	**183.00**	**173.00**
37.5	240 or 480	24–6	**822.00**	**73.00**	**19.00**	**8.00**	**183.00**	**173.00**
50	120/208	24–8	**987.00**	**73.00**	**19.00**	**8.00**	**201.00**	**173.00**
50	240 or 480	24–8	**907.00**	**73.00**	**19.00**	**8.00**	**201.00**	**173.00**

*Units in these sizes do not include voltage regulator. These generators have approximately 10% inherent voltage regulation.

§When specified on order Damper Windings for these ratings will be furnished without additional charge.

†Belted exciters not furnished on 1800 Rpm. generators.

¶Belted exciters not furnished on these generators.

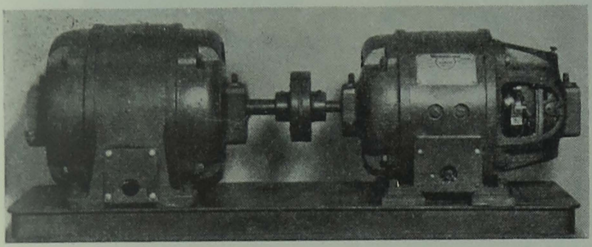
WESTINGHOUSE MOTOR-GENERATORS

FOR LIGHTING AND POWER, EXCITATION, AND BATTERY CHARGING

½ to 1½ KW. and Up

Shunt and Compound Wound—12, 24, 32, 40, 50 125 and 250-Volt Generators

Motors all Standard Voltages—25, 50, 60 Cycles, A-C. and D-C.



Shunt and Compound Wound Type

Numerous processes and machines used in various industries require direct current for their operation. As alternating-current is the power supply generally available, it becomes necessary to provide an inexpensive and reliable means of changing the alternating-current power supply to direct-current.

The dependability of Westinghouse Motor-Generators is proven by the large number of these sets in operation.

A complete line can be supplied in all capacities from ½ kw. and up. The ½ to 1½ kw. are built for operation on all commercial voltages and frequencies, either single-phase, polyphase or direct-current.

These small sets are two-unit, four-bearing, flexibly coupled and are mounted on one-piece cast iron bedplates.

Type SK generators are supplied on sets from ½ kw. to 1½ kw. inclusive. Type SK generator has forged steel frame. Gives uniform magnetic circuit. Brackets are of grey cast iron. They are drip-proof and equipped with the well-known sealed sleeve bearings. Field and commutating coils are form wound, taped, impregnated with insulating varnish and baked. This prevents absorption of moisture.

Type SK direct current motor is supplied on D-C.–D-C. sets from ½ to 1½ kw. inclusive.

Type CR repulsion-induction motor is used with single-phase sets. Type CS general purpose induction motor is supplied on polyphase sets.

Prices upon request.

It is impossible to list all of the materials we can supply in this catalog. Advise us of your requirements which will receive our prompt and careful attention.

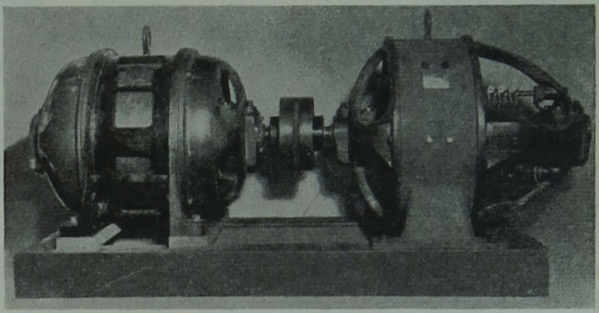
WESTINGHOUSE MOTOR-GENERATORS

FOR LIGHTING AND POWER, EXCITATION, AND BATTERY CHARGING

½ to 150 KW. Inclusive

Induction Motors—25, 50 and 60 Cycles; Synchronous Motors—25, 50 and 60 Cycles; 80 and 100% P.F.

Generators—125 and 250 Volts



Induction Type — ½ to 100 KW.

A complete line of Westinghouse Motor-Generator sets can be supplied in all capacities established by practice as the best to use for different applications.

There are three general classes of service, namely: 1. Lighting and Power; 2. Excitation; 3. Battery-Charging.

1. This class of service merely involves changing of current from the available type to that which is required to operate the machines on hand. This may be from A-C. to D-C. or visa versa. The former, however, is generally the case, and is commonly found in elevator operation, numerous chemical processes, etc.

2. For excitation service, the Motor-Generator Set can provide excitation for large D-C. motors, A-C. generators and certain sizes and types of synchronous motors, etc.

3. Battery-charging service is very common. The equipment is used to charge storage batteries for signal work, pullman car lighting, electric trucks and vehicles, power house control circuits, etc.

There are two types of motor-generator sets, namely, the Induction, which employs an induction motor to run it; and the Synchronous, using a synchronous motor. The former is further divided into polyphase induction and single-phase repulsion-induction. For power factor correction, or where a more constant speed is desired, the synchronous motor-generator set is used. The induction motor-generator set, however, presents a similar equipment and preferred wherever possible.

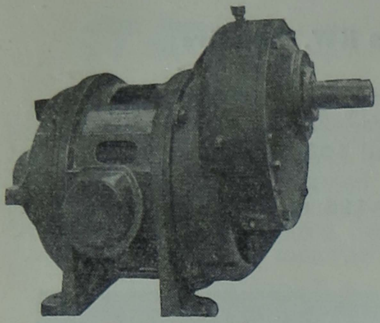
A complete line of induction type frequency changers is also available.

Illustration typifies the construction of the induction motor-generator set, from ½ to 100 kw. Three-bearing pedestal-type is used on larger sets.

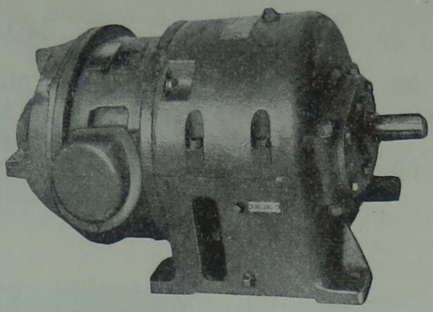
WESTINGHOUSE GEARMOTORS

ELECTRIC MOTOR COMBINED WITH BUILT-IN SPEED REDUCER

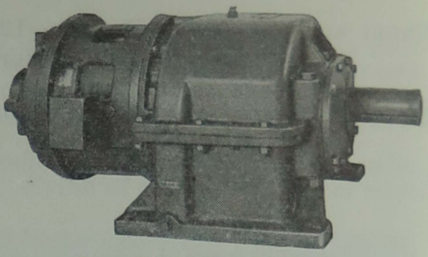
¾ to 75 H.P.—Speeds 4.4 to 1550 R.P.M.



Type S, Single Reduction
Speeds 625 to 232 RPM



Type D, Double Reduction
Speeds 219 to 116 RPM



Type FD, Double Reduction
Speeds 110 to 44 RPM

Application

With most motor applications on industrial operations, some mechanical means is required for reducing the normally high motor speed to satisfactory operating speeds.

For drives requiring ¾ to 75 h.p. and operating speeds of 4.4 to 1550 rpm., Gearmotors combine standard motor frames 204 to 505 inclusive, with the necessary speed reduction into single self-contained units.

Because of their simple construction, ease of application and highly efficient performance, Gearmotors make possible appreciable economies in the installation, operation and upkeep of industrial drives.

This advanced type of drive may be coupled direct to the driven equipment or connected by cog belts, chains and sprockets or flat belts. In fact, it is applicable for any requirement for which general purpose motors are suitable.

These gearmotors each consists of a simple all external geared type single or double reduction speed reducer combined with a normally high-speed motor.

Their design and sturdy construction is based on an intimate knowledge of industrial drive requirements, acquired through long experience in developing and building motors and reduction gear units for industry-wide application.

Probably the most common application of gearmotors is one using a type CS open motor. The stator frame and feet are cast from close grained gray iron, thus combining great strength and rigidity with light weight. Type CW wound rotor motors, direct current motors, or single-phase motors types CU and CR may be applied to gearmotors as well as the type CS described above.

Distinctive Features

Unitary Power — The speed reducer parts in Westinghouse gearmotors are designed and built strong enough to take loads equal to the maximum torque capacity of the motor. Inasmuch as Westinghouse Unitary Powered gearmotors have a rating for the complete unit, separate speed reducer ratings and motor peak ratings need no longer be considered.

Compactness—Westinghouse gearmotors can be installed in practically the same space as standard motors, as they are only a few inches longer overall. Their neat appearance assures an attractive assembly with the driven equipment.

Easy Installation—Mounting and aligning operation are reduced to the minimum by having motor and speed reducer built integral.

Simple Speed Reduction—Single helical all external steel gearing, the type of gearing that has proven extremely satisfactory after years of service in standard speed reducers. With this construction the minimum number of parts are required.

BPT Heat-treated Gears—All gears and pinions are heat-treated by the exclusive Westinghouse-Nuttall BPT "tough-hard" process, which provides maximum load-carrying capacity and utmost resistance to wear and shock.

Minimum Bearing Friction—Sturdy anti-friction bearings. Accurate gear center distances definitely maintained.

Wide Variety of Output Speeds—A wide range of reduction ratios is available for each motor speed and horsepower. When it is desirable to change the output speed after the installation of the unit, the necessary parts can be supplied quickly at a small proportion of the initial cost of the unit.

Efficient Performance — Low operating speeds are obtainable at higher efficiencies and power factors than by direct-connected slow-speed motors.

The single reduction gear parts have an efficiency of at least 98 percent, and the double reduction gear parts an efficiency of 96 percent to 97 percent.

Quiet Operation—Helical gears, fully enclosed and running in continuous oil bath, are remarkably quiet in operation.

Self-Lubrication—An ample supply of oil is provided to all moving parts of gear unit, and motor bearing adjacent to it by effective splash system. Other motor bearing is packed in grease.

Adaptability—Can be used with practically any Westinghouse motor of the W-frame series, making them suitable for polyphase or single-phase alternating-current or direct-current power systems.

Negligible Upkeep—Completely enclosed speed reducer needs no attention other than occasional addition of lubricating oil. Sturdy, all-steel construction of load-carrying parts assures utmost dependability and long life under most severe conditions. The motors have a long record of reliable, low-cost performance in all classes of service.

Bases—A sliding base or rails are necessary for adjustment of belt or chain tension. For all Types of S and D Gearmotors these will be supplied at the price applying for similar equipment for an 1800 Rpm. motor of the specified horsepower. For FD Gearmotors, special oversize bases are required.

WESTINGHOUSE GEARMOTORS

Output Rpm. F.L.S.—60 Cycle	Hp.	Frame	CS Open	CS Totally Enclosed Non-Ventilated	CS Totally Enclosed Non-Ventilated Explosion Proof	CW Open	SK Open	Frame	CR Open
1550, 1400, 1250, 1100, 972, 875, 778, 700, 625 or 547	¾	S204	$ 75.00	$ 85.00	$101.00	$140.00	$109.00	S204	$ 75.00
486, 437, 389 or 350	¾	S204	77.00	87.00	103.00	142.00	111.00	S204	77.00
322, 290, 258 or 232	¾	S204	81.00	92.00	108.00	146.00	115.00	S204	81.00
219, 194, 175, 161 or 145	¾	D204	87.00	98.00	114.00†	152.00	121.00	D204	87.00
129 or 116	¾	D204	93.00	105.00	121.00†	158.00	127.00	D204	93.00
110, 97, 87, 78 or 70	¾	FD204	105.00	118.00	134.00	170.00	139.00	FD204	105.00
62, 55, 49 or 44	¾	FD204	119.00	133.00	149.00	184.00	153.00	FD204	119.00
41, 36, 32 or 29	¾	FD204	128.00	143.00	159.00	193.00	162.00	FD204	128.00
27, 24 or 22	¾	FD224	140.00	157.00	173.00	205.00	174.00	FD225	140.00
19.5, 17.5, 15.6, 14.0 or 12.5	¾	T204C	158.00	176.00	192.00	223.00	192.00	T204C	158.00
11	¾	T204C	193.00	215.00	231.00	258.00	227.00	T204C	193.00
9.7, 8.8, 8.3, 7.2 or 6.4	¾	T204C	233.00	259.00	275.00	298.00	267.00	T204C	233.00
58	¾	T204D	298.00	330.00	346.00	363.00	332.00	T204D	298.00
5.4, 4.8 or 4.4	¾	T224D	*	*	*	*	*	T225D	*
1550, 1400, 1250, 1100, 972, 875, 778, 700, 625 or 547	1	S204	79.00	87.00	103.00	159.00	126.00	S204	83.00
486, 437, 389 or 350	1	S204	81.00	89.00	105.00	161.00	128.00	S204	85.00
322, 290, 258 or 232	1	S204	85.00	94.00	110.00	165.00	132.00	S224	89.00
219, 194 or 175	1	D204	94.00	104.00	120.00†	174.00	141.00	D204	98.00
161	1	D204	94.00	104.00	120.00†	174.00	141.00	D224	98.00
145, 129 or 116	1	D204	103.00	113.00	129.00†	183.00	150.00	D224	107.00
110, 97, 87, 78 or 70	1	FD204	116.00	128.00	144.00	196.00	163.00	FD204	120.00
62, 55, 49 or 44	1	FD204	132.00	145.00	161.00	212.00	179.00	FD204	136.00
41, 36, 32 or 29	1	FD204	143.00	157.00	173.00	223.00	190.00	FD224	147.00
27, 24 or 22	1	FD225	159.00	175.00	191.00	239.00	206.00	T204C	163.00
19.5, 17.5 or 15.6	1	T204C	180.00	198.00	214.00	260.00	227.00	T204C	184.00
14 or 12.5	1	T204C	180.00	198.00	214.00	260.00	227.00	T204C	184.00
11, 9.7 or 8.8	1	T204C	241.00	265.00	281.00	321.00	288.00	T204C	245.00
8.3	1	T204D	241.00	265.00	281.00	321.00	288.00	T224D	245.00
7.2	1	T204D	312.00	343.00	359.00	392.00	359.00	T224D	316.00
6.4 or 5.8	1	T204D	312.00	343.00	359.00	392.00	359.00	T224D	316.00
5.4, 4.8 or 4.4	1	T225-E	*	*	*	*	*	---------	-----------
1550, 1400, 1250, 1100, 972, 875, 778, 700, 625 or 547	1½	S224	98.00	108.00	126.00	173.00	150.00	S224	107.00
486, 437, 389 or 350	1½	S224	101.00	112.00	130.00	176.00	153.00	S224	110.00
322, 290, 258 or 232	1½	S224	107.00	118.00‡	136.00‡	182.00	159.00	S225	116.00
219, 194 or 175	1½	D224	118.00	130.00	148.00†	193.00	170.00	D224	127.00
161	1½	D224	118.00	130.00‡	148.00†	193.00	170.00	D225	127.00
145, 129 or 116	1½	D224	126.00	139.00‡	157.00†	201.00	178.00	D225	135.00
110, 97, 87, 78 or 70	1½	FD224	143.00	158.00	176.00	218.00	195.00	FD224	152.00
62, 55, 49 or 44	1½	FD224	163.00	180.00	198.00	238.00	215.00	FD224	172.00
41, 36, 32 or 29	1½	FD224	178.00	196.00‡	214.00‡	253.00	230.00	FD225	187.00
27, 24 or 22	1½	FD254	196.00	216.00	234.00	271.00	248.00	T224D	205.00
19.5, 17.5, 15.6, 14 or 12.5	1½	T224D	222.00	245.00	263.00	297.00	274.00	T224D	231.00
11	1½	T224D	264.00	291.00	309.00	339.00	316.00	T224D	273.00
9.7 or 8.8	1½	T224D	311.00	343.00	361.00	386.00	363.00	T224D	320.00
8.3	1½	T224E	311.00	343.00‡	361.00‡	386.00	363.00	T225E	320.00
7.2, 6.4 or 5.8	1½	T224E	357.00	393.00‡	411.00‡	432.00	409.00	T225E	366.00
5.4, 4.8 or 4.4	1½	T254E	*	*	*	*	*	---------	-----------

*Price on request.

†Frame size on request.

‡Frame 225.

WESTINGHOUSE GEARMOTORS—(Continued)

Output Rpm. F.L.S.—60 Cycle	Hp.	Frame	CS Open	CS Totally Enclosed Fan Cooled	Totally CS Enclosed Fan Cooled Explosion Proof	CW Open	SK Open	Frame	CR or CU Open
1550, 1400, 1250, 1100, 972 875, 778, 700, 625 or 547	2	S225	$114.00	$143.00	$161.00	$187.00	$170.00	S225	$132.00
486, 437, 389 or 350	2	S225	116.00	145.00	163.00	189.00	172.00	S225	134.00
322, 290, 258 or 232	2	S225	123.00	153.00	171.00	196.00	179.00	D225	141.00
219, 194 or 175	2	D225	135.00	166.00†	184.00	208.00	191.00	D225	153.00
161	2	D225	135.00	166.00†	184.00	208.00	191.00	FD225	153.00
145, 129 or 116	2	D225	145.00	177.00†	195.00	218.00	201.00	FD225	163.00
110, 97, 87, 78 or 70	2	FD225	164.00	198.00	216.00	237.00	220.00	FD225	182.00
62 or 55	2	FD225	188.00	225.00	243.00	261.00	244.00	FD225	206.00
49 or 44	2	FD225	188.00	225.00	243.00	261.00	244.00	FD225	206.00
41, 36, 32 or 29	2	FD225	205.00	243.00	261.00	278.00	261.00	FD254	223.00
27, 24 or 22	2	FD254	228.00	269.00	287.00	301.00	284.00	T225D	246.00
19.5, 17.5, 15.6 or 14	2	T225D	260.00	304.00	322.00	333.00	316.00	T225D	278.00
12.5	2	T225D	260.00	304.00	322.00	333.00	316.00	T225D	278.00
11	2	T225E	309.00	359.00	377.00	382.00	365.00	T225E	327.00
9.7 or 8.8	2	T225E	374.00	429.00	447.00	447.00	430.00	T225E	392.00
8.3	2	T225E	374.00	429.00	447.00	447.00	430.00	T254E	392.00
7.2	2	T225E	387.00	443.00	461.00	460.00	443.00	T254E	405.00
6.4	2	T225E	387.00	443.00	461.00	460.00	443.00	T254E	405.00
5.8	2	T225E	565.00	639.00	657.00	638.00	621.00	T254E	583.00
5.4, 4.8 or 4.4	2	T254F	*	*	*	*	*	-------	-----------

Output Rpm. F.L.S.—60 Cycle	Hp.	Frame	CS Open	CS Linestart Class II Open	CS Totally Enclosed Fan Cooled	CS Totally Enclosed Fan Cooled Explosion Proof	CW Open	SK Open	CR or CU Open
1550, 1400, 1250, 1100, 972 875, 778, 700, 625 or 547	3	S225	$126.00	$126.00	$156.00	$174.00	$210.00	$201.00	$157.00
486, 437, 389 or 350	3	S225	129.00	129.00	159.00	177.00	213.00	204.00	160.00
322, 290, 258 or 232	3	S254	137.00	137.00	168.00	186.00	221.00	212.00	168.00
219, 194 or 175	3	D225	149.00	149.00	181.00†	199.00†	233.00	224.00	180.00
161, 145, 129 or 116	3	D254	161.00	161.00	194.00†	212.00†	245.00	236.00	192.00
101, 97 or 87	3	FD225	183.00	183.00	218.00	236.00	267.00	258.00	214.00
78 or 70	3	FD225	183.00	183.00	218.00	236.00	267.00	258.00	214.00
62, 55, 49 or 44	3	FD225	211.00	211.00	249.00	267.00	295.00	286.00	242.00
41, 36, 32 or 29	3	FD254	232.00	232.00	272.00	290.00	316.00	307.00	263.00
27, 24 or 22	3	FD284	258.00	258.00	301.00	319.00	342.00	333.00	289.00
19.5 or 17.5	3	T225D	296.00	296.00	343.00	361.00	380.00	371.00	327.00
15.6, 14 or 12.5	3	T225E	296.00	296.00	343.00	361.00	380.00	371.00	327.00
11 or 9.7	3	T225E	382.00	382.00	437.00	455.00	466.00	457.00	413.00
8.8	3	T225E	382.00	382.00	437.00	455.00	466.00	457.00	413.00
8.3, 7.2, 6.4 or 5.8	3	T254F	581.00	581.00	656.00	674.00	665.00	656.00	612.00
5.4, 4.8 or 4.4	3	T284G	*	*	*	*	*	*	*
1550, 1400, 1250, 1100, 972 875, 778, 700, 625 or 547	5	S254	151.00	154.00	187.00	209.00	254.00	293.00	223.00**
486, 437, 389 or 350	5	S254	155.00	158.00	191.00	213.00	258.00	297.00	227.00
322, 290, 258 or 232	5	S284	163.00	166.00	200.00	222.00	266.00	305.00	235.00
219, 194 or 175	5	D254	178.00	181.00	217.00†	239.00†	281.00	320.00	250.00
161 or 145	5	D284	190.00	193.00	230.00†	252.00	293.00	332.00	262.00
129 or 116	5	D284	190.00	193.00	230.00†	352.00	293.00	332.00	262.00
110, 97, 87 or 78	5	FD254	219.00	222.00	262.00	284.00	322.00	361.00	291.00
70	5	FD254	219.00	222.00	262.00	284.00	322.00	361.00	291.00
62, 55, 49 or 44	5	FD254	253.00	256.00	299.00	321.00	356.00	395.00	325.00
41 or 36	5	FD284	280.00	283.00	329.00	351.00	383.00	422.00	352.00
32 or 29	5	FD284	280.00	283.00	329.00	351.00	383.00	422.00	352.00
27, 24 or 22	5	FD324	313.00	316.00	365.00	387.00	416.00	*	*
19.5 or 17.5	5	T254E	362.00	365.00	419.00	441.00	465.00	504.00	434.00
15.6	5	T254E	362.00	365.00	419.00	441.00	465.00	504.00	434.00
14 or12.5	5	T254F	362.00	365.00	419.00	441.00	465.00	504.00	434.00
11	5	T254F	575.00	578.00	653.00	675.00	678.00	717.00	647.00
9.7 or 8.8	5	T254F	601.00	604.00	682.00	704.00	704.00	743.00	673.00
8.3, 7.2, 6.4 or 5.8	5	T284G	848.00	851.00	954.00	976.00	951.00	990.00	920.00
5.4, 4.8 or 4.4	5	T324H	*	*	*	*	*	-----------	-----------

*Price on request.

**For 5 hp. single phase—use type CU only.

†Frame size on request.

WESTINGHOUSE GEARMOTORS—(Continued)

Output Rpm. F.L.S.—60 Cycle	Hp.	Frame	CS General Purpose or Class I Linestart Open	CS Linestart Class II Open	CS Totally Enclosed Fan-Cooled	CS Totally Enclosed Fan-Cooled Explosion Proof	CW Open	Frame	SK Open	CU Open
1550, 1400, 1250, 1100, 972, 875, 778, 700, 625 or 547	7½	S284	**$186.00**	**$191.00**	**$234.00**	**$258.00**	**$301.00**	S284	**$352.00**	**$301.00**
486, 437, 389 or 350	7½	S284	**191.00**	**196.00**	**240.00**	**264.00**	**306.00**	S284	**357.00**	**306.00**
322, 290, 258 or 232	7½	S324	**203.00**	**208.00**	**253.00**	**277.00**	**318.00**	D284	**369.00**	**318.00‡**
219, 194 or 175	7½	D284	**222.00**	**227.00**	**274.00†**	**298.00†**	**337.00**	D284	**388.00**	**337.00**
161, 145, 129 or 116	7½	D324	**239.00**	**244.00**	**293.00†**	**317.00†**	**354.00**	FD284	**405.00**	**354.00⋆**
110, 97, 87, 78 or 70	7½	FD284	**273.00**	**278.00**	**330.00**	**354.00**	**388.00**	FD284	**439.00**	**388.00**
62 or 55	7½	FD284	**316.00**	**321.00**	**377.00**	**401.00**	**431.00**	FD284	**482.00**	**431.00**
49 or 44	7½	FD284	**316.00**	**321.00**	**377.00**	**401.00**	**431.00**	FD284	**482.00**	**431.00**
41, 36, 32 or 29	7½	FD324	**351.00**	**356.00**	**416.00**	**440.00**	**466.00**	T284F§	**517.00**	**466.00**
27	7½	FD326	**396.00**	**401.00**	**465.00**	**489.00**	**511.00**	T284F§	**562.00**	**511.00**
24 or 22	7½	FD326	**396.00**	**401.00**	**465.00**	**489.00**	**511.00**	T284F§	**562.00**	**511.00**
19.5, 17.5, 15.6 or 14	7½	T284F	**458.00**	**463.00**	**534.00**	**558.00**	**573.00**	T284F§	**624.00**	**573.00**
12.5	7½	T284G	**458.00**	**463.00**	**534.00**	**558.00**	**573.00**	T284G§	**624.00**	**573.00**
11	7½	T284G	**624.00**	**629.00**	**716.00**	**740.00**	**739.00**	T284G§	**790.00**	**739.00**
9.7 or 8.8	7½	T284G	**755.00**	**760.00**	**860.00**	**884.00**	**870.00**	T284G§	**921.00**	**870.00**
8.3 or 7.2	7½	T324H	**892.00**	**897.00**	**1011.00**	**1035.00**	**1007.00**	....	....	....
6.4 or 5.8	7½	T324H	**892.00**	**897.00**	**1011.00**	**1035.00**	**1007.00**	....	....	....
5.4, 4.8 or 4.4	7½	T326J	*	*	*	*	*	....	....	....
1550, 1400, 1250, 1100, 972, 875, 778, 700, 625 or 547	10	S324	**233.00**	**238.00**	**299.00**	**330.00**	**357.00**	....	....	....
486, 437, 389 or 350	10	S324	**241.00**	**247.00**	**307.00**	**338.00**	**365.00**	....	....	....
322, 290, 258 or 232	10	S326	**253.00**	**259.00**	**321.00**	**352.00**	**377.00**	....	....	....
219, 194 or 175	10	D324	**275.00**	**281.00**	**345.00†**	**376.00†**	**399.00**	....	....	....
161, 145, 129 or 116	10	D326	**294.00**	**300.00**	**366.00†**	**397.00†**	**418.00**	....	....	....
110, 97, 87, 78 or 70	10	FD324	**340.00**	**346.00**	**416.00**	**447.00**	**464.00**	....	....	....
62, 55, 49 or 44	10	FD324	**399.00**	**405.00**	**481.00**	**512.00**	**523.00**	....	....	....
41 or 36	10	FD326	**443.00**	**449.00**	**530.00**	**561.00**	**567.00**	....	....	....
32 or 29	10	FD326	**443.00**	**449.00**	**530.00**	**561.00**	**567.00**	....	....	....
27, 24 or 22	10	FD365	**500.00**	**505.00**	**592.00**	**623.00**	**624.00**	....	....	....
19.5 or 17.5	10	T324G	**584.00**	**590.00**	**685.00**	**716.00**	**708.00**	....	....	....
15.6, 14 or 12.5	10	T324G	**584.00**	**590.00**	**685.00**	**716.00**	**708.00**	....	....	....
11	10	T324H	**768.00**	**774.00**	**887.00**	**918.00**	**892.00**	....	....	....
9.7 or 8.8	10	T324H	**915.00**	**921.00**	**1049.00**	**1080.00**	**1039.00**	....	....	....
8.3, 7.2, 6.4 or 5.8	10	T326J	**973.00**	**979.00**	**1113.00**	**1144.00**	**1097.00**	....	....	....
5.4, 4.8 or 4.4	10	T365J	*	*	*	*	*	....	....	....

Output Rpm. F.L.S.—60 Cycle	Hp.	Frame	CS General Purpose or Class I Linestart Open	CS Linestart Class II Open	CS Totally Enclosed Fan Cooled	CS Totally Enclosed Fan Cooled Explosion Proof	CW Open
1550, 1400, 1250, 1100, 972, 875, 778, 700, 652 or 547	15	S326	**$287.00**	**$294.00**	**$355.00**	**$386.00**	**$483.00**
486, 437, 389 or 350	15	S326	**294.00**	**301.00**	**362.00**	**393.00**	**490.00**
322, 290, 258 or 232	15	S365	**312.00**	**319.00**	**382.00**	**413.00**	**508.00**
219, 194 or 175	15	D326	**339.00**	**346.00**	**412.00†**	**443.00†**	**535.00**
161, 145, 129 or 116	15	D365	**367.00**	**374.00**	**443.00†**	**474.00†**	**563.00**
110, 97, 87, 78 or 70	15	FD326	**424.00**	**431.00**	**505.00**	**536.00**	**620.00**
62 or 55	15	FD326	**497.00**	**504.00**	**586.00**	**617.00**	**693.00**
49 or 44	15	FD326	**497.00**	**504.00**	**586.00**	**617.00**	**693.00**
41, 36, 32 or 29	15	FD365	**553.00**	**560.00**	**647.00**	**678.00**	**749.00**
27	15	FD404	**625.00**	**632.00**	**726.00**	**757.00**	**821.00**
24 or 22	15	FD404	**625.00**	**632.00**	**726.00**	**757.00**	**821.00**
19.5, 17.5, 15.6 or 14	15	T326H	**728.00**	**735.00**	**840.00**	**871.00**	**924.00**
12.5	15	T326H	**728.00**	**735.00**	**840.00**	**871.00**	**924.00**
11	15	T326H	**928.00**	**935.00**	**1060.00**	**1091.00**	**1124.00**
9.7 or 8.8	15	T326J	**1006.00**	**1013.00**	**1146.00**	**1177.00**	**1202.00**
8.3 or 7.2	15	T365J	**1248.00**	**1255.00**	**1412.00**	**1443.00**	**1444.00**

*Price on request.
†Frame size on request.
‡1750 Rpm. motor used. Output Speeds are 312, 274 or 243.
⋆1750 Rpm. motor used. Output Speeds are 155, 144 or 125.
§1750 Rpm. motor used.

WESTINGHOUSE GEARMOTORS—(Continued)

Output Rpm. F.L.S.—60 Cycle	Hp.	Frame	CS General Purpose or Class I Linestart Open	CS Linestart Class II Open	CS Totally Enclosed Fan Cooled	CS Totally Enclosed Fan Cooled Explosion Proof	CW Open
1550, 1400, 1250, 1100, 972, 875, 778, 700, 625 or 547	20	S364	$330.00	$343.00	$425.00	$470.00	$565.00
486, 437, 389 or 350	20	S364	342.00	355.00	438.00	483.00	577.00
322 or 290	20	S404	366.00	379.00	465.00	510.00	601.00
258 or 232	20	S404	366.00	379.00	465.00	510.00	601.00
219, 194 or 175	20	D364	403.00	416.00	506.00†	551.00†	638.00
161, 145, 129 or 116	20	D404	439.00	452.00	545.00†	590.00†	674.00
110, 97, 87, 78 or 70	20	FD364	514.00	527.00	628.00	673.00	749.00
62, 55, 49 or 44	20	FD364	609.00	622.00	732.00	777.00	844.00
41 or 36	20	FD404	685.00	698.00	816.00	861.00	920.00
32 or 29	20	FD404	685.00	698.00	816.00	861.00	920.00
27, 24 or 22	20	FD405	786.00	799.00	927.00	972.00	1021.00
19.5 or 17.5	20	T364H	922.00	935.00	1076.00	1121.00	1257.00
15.6, 14 or 12.5	20	T364H	922.00	935.00	1076.00	1121.00	1257.00
11, 9.7 or 8.8	20	T364J	1284.00	1297.00	1475.00	1520.00	1519.00
1550, 1400, 1250, 1100, 972, 875, 778, 700, 625 or 547	25	S365	358.00	373.00	452.00	497.00	618.00
486, 437, 389 or 350	25	S365	371.00	386.00	467.00	512.00	631.00
322, 290, 258 or 232	25	S405	399.00	414.00	498.00	543.00	659.00
219, 194 or 175	25	D365	445.00	460.00	548.00†	593.00†	705.00
161, 145, 129 or 116	25	D405	487.00	502.00	594.00†	639.00†	747.00
110, 97 or 87	25	FD365	573.00	588.00	689.00	734.00	833.00
78 or 70	25	FD365	573.00	588.00	689.00	734.00	833.00
62, 55, 49 or 44	25	FD365	683.00	698.00	810.00	855.00	943.00
41, 36, 32 or 29	25	FD405	767.00	782.00	902.00	947.00	1027.00
27, 24 or 22	25	FD444	877.00	892.00	1023.00	1068.00	1137.00
19.5, 17.5 or 15.6	25	T365H	1029.00	1044.00	1191.00	1236.00	1289.00
1550, 1400, 1250, 1100, 972, 875, 778, 700, 625 or 547	30	S405	446.00	466.00	555.00	621.00	681.00
486, 437, 389 or 350	30	S405	463.00	483.00	574.00	640.00	698.00
322, 290, 258 or 232	30	S444	500.00	520.00	614.00	680.00	735.00
219	30	D405	557.00	577.00	677.00†	743.00†	792.00
194 or 175	30	D405	557.00	577.00	677.00†	743.00†	792.00
161, 145, 129 or 116	30	D444	608.00	628.00	733.00†	799.00†	843.00
110, 97, 87, 78 or 70	30	FD405	713.00	733.00	849.00	915.00	948.00
62 or 55	30	FD405	839.00	859.00	987.00	1053.00	1074.00
49 or 44	30	FD405	839.00	859.00	987.00	1053.00	1074.00
41, 36, 32 or 29	30	FD444	944.00	964.00	1103.00	1169.00	1179.00
27, 24 or 22	30	FD445	1081.00	1101.00	1253.00	1319.00	1316.00
19 or 17	30	FD504	1270.00	1290.00	1461.00	1527.00	1505.00
16 or 15	30	FD505	1270.00	1290.00	1461.00	1527.00	1505.00

*Price on request.

†Frame size on request.

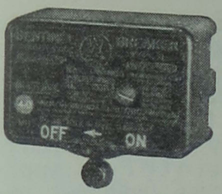
WESTINGHOUSE MANUAL STARTERS

SENTINEL BREAKERS

NON-REVERSING SERVICE

For Fractional A-C. or D-C. Motors

110 and 220 Volts A-C.; 32, 115 and 230 Volts D-C.



Type H Single-Pole Sentinel Breaker

Type H Sentinel Breaker is an extensively used motor starter. Especially designed to provide positive protection against burnouts to small motors, used with domestic appliances, such as washing machines, ironers, refrigerators, oil burners, etc.; also industrial apparatus including pumps, compressors, fans, blowers, woodworking tools, etc., where machines may be operated by persons unfamiliar with the care of motors.

Momentary overloads, such as are caused by a blanket passing through the wringer of a washing machine, do not produce sufficient heat in the thermal element to cause tripping of the breaker.

Instant tripping, however, takes place under conditions that are dangerous to the motor, such as sustained heavy overloads, stalling of the motor, or short circuits between breaker and motor.

Safe to operate. No possibility of shock to operator. All current-carrying parts are completely enclosed in a moisture-proof, bakelite case. The only moving part exposed is the handle. The trip-free breaker cannot be held in "on" position while an injurious motor overload exists.

Readily interchangeable thermal elements permit full protection of all fractional horsepower motors within the capacity of the breaker.

Prices* and Dimensions

Cat. No.	A-C. Rating Max. Hp. 110V.	A-C. Rating Max. Hp. 220V.	No. Poles	APPROXIMATE DIMENSIONS Hght.	APPROXIMATE DIMENSIONS Wdth.	APPROXIMATE DIMENSIONS Dpth.	Price with Heater
831300	1	1	1	$1\frac{31}{32}$	$2\frac{29}{32}$	$1\frac{15}{32}$	**$1.75**
831320	1	1	2	$2\frac{19}{32}$	$2\frac{29}{32}$	$1\frac{15}{32}$	**2.00**

Addition for Steel Enclosure—**$0.40**

Heater Table

Thermal Heaters Only† Cat. No.	To Protect Motors With F. L. Amp. Between	Use Heater Ampere Rating	Price Each Extra Heaters
831301	1.1 to 1.3	1.4	**$0.50**
831302	1.3 to 1.45	1.6	**.50**
831303	1.45 to 1.65	1.8	**.50**
831304	1.65 to 1.9	2.1	**.50**
831305	1.9 to 2.2	2.4	**.50**
831306	2.2 to 2.5	2.7	**.50**
831307	2.5 to 2.8	3.1	**.50**
831308	2.8 to 3.2	3.5	**.50**
831309	3.2 to 3.6	4.0	**.50**
831310	3.6 to 4.1	4.5	**.50**
831311	4.1 to 4.65	5.1	**.50**
831312	4.65 to 5.3	5.8	**.50**
831313	5.3 to 6.0	6.6	**.50**
831314	6.0 to 6.8	7.5	**.50**
831315	6.8 to 7.7	8.5	**.50**
831316	7.7 to 8.8	9.6	**.50**
831317	8.8 to 10.0	10.9	**.50**
831318	10.0 to 11.4	12.5	**.50**
831319	11.4 to 12.9	14.2	**.50**

*Price includes complete breaker with heater element, which should be selected from Heater-Table by customer.

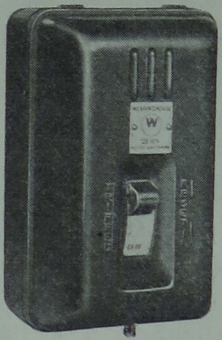
†All thermal heaters are interchangeable and are used with both the single-pole and double-pole Type H Sentinel Breakers.

WESTINGHOUSE MANUAL STARTERS

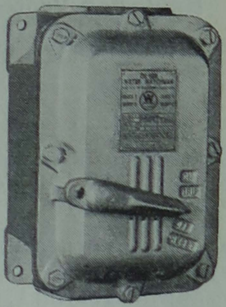
TYPE DnW "DE-ION" MOTOR WATCHMAN

For A-C. Motors

1 and 3-Phase—1/6 to 7½ Hp.—110 to 600 Volts



Class 10-100 SO Standard Surface Mounting



Class 10-100 WO Dust-Tight and Water-Tight

A manually operated motor starter for starting, stopping and protecting small single-phase and polyphase a-c. motors driving fans, pumps, machine tools, food machinery and many other industrial applications.

The "De-Ion" arc quenchers most effectively open the circuit and save contacts from burning. Quick-make and quick-break trip-free toggle operating mechanism. All switch positions positively indicated (On, Off, Tripped). Bi-metallic disc type overload relay provides inverse time limit motor protection. Moisture-proof porcelain arc boxes and relays are non-carbonizing and non-warping. Safety interlock prevents contact with live parts. Double break silver-to-silver contacts eliminate necessity for flexible shunts. Wiring is straight through and terminals are easily accessible.

Standard Surface Mounting Sheet Steel Enclosure, NEMA Type I

Cat. No.*	Class No.	Size No.	Max. Horsepower 110 Volts	Max. Horsepower 208-220 Volts	Max. Horsepower 440-660 Volts	Price With Heaters
For Single-Phase Motors—Two-Pole—One Overload Heater						
1040456	10-100 S0	0	1	1½	1½	**$6.50**
1040459	10-100 S1	1	1½	3	5	**8.50**
For Three-Phase Motors†—Three-Pole—Two Overload Heaters						
1040457	10-100 S0	0	1½	2	2	**7.50**
1040460	10-100 S1	1	3	5	7½	**9.50**

Approximate shipping weight of starter, 6 lbs.

Addition for cadmium plated enclosure:

Size 0—**$2.00** Size 1—**$3.00**

Dust-Tight, Water-Tight Cast Enclosure NEMA Types III, IV and V

Cat. No.*	Class No.	Size No.	Max. Horsepower 110 Volts	Max. Horsepower 208-220 Volts	Max. Horsepower 440-660 Volts	Price With Heaters
For Single-Phase Motors—Two-Pole—One Overload Heater						
1072772‡	10-100 W0	0	1	1½	1½	**$18.00**
1072774‡	10-100 W1	1	1½	3	5	**22.00**
For Three-Phase Motors†—Three-Pole—Two Overload Heaters						
1072773‡	10-100 W0	0	1½	2	2	**19.00**
1072765§	10-100 W0	0	1½	2	2	**19.00**
1072775‡	10-100 W1	1	3	5	7½	**23.00**
1072767§	10-100 W1	1	3	5	7½	**23.00**

Approximate shipping weight of starter, 16 lbs.

*Catalog number does not include heaters; select heaters from the table on following page.

†These starters may be used on 2-phase, 4-wire circuits by running one wire direct to motor.

‡This style has one tapped hole for 1-inch conduit in each end.

§This style has two tapped holes for 1-inch conduit in bottom.
Omission price of heaters..........$0.60 Each
Starters with tapped holes for ¾-inch or 1¼-inch conduit may be supplied at listed prices on special order.

WESTINGHOUSE A-C. MANUAL STARTERS

TYPE DnW "DE-ION" MOTOR WATCHMAN

For A-C. Motors

1 and 3-Phase—1/6 to 7½ Hp.—110 to 600 Volts

Explosion-Protecting for Class I Group D and Class II Group G Locations—NEMA Types VIII and IX

Cat. No.*	Class No.	Size No.	Max. Horsepower 110 Volts	Max. Horsepower 208-220 Volts	Max. Horsepower 440-660 Volts	Price With Heaters
For Single-Phase Motors—Two-Pole—One Overload Heater						
1072692‡	10-100 U0	0	1	1½	1½	**$23.00**
1072694‡	10-100 U1	1	1½	3	5	**27.00**
For Three-Phase Motors†—Three-Pole—Two Overload Heaters						
1072693‡	10-100 U0	0	1½	2	2	**24.00**
1072681§	10-100 U0	0	1½	2	2	**24.00**
1072695‡	10-100 U1	1	3	5	7½	**28.00**
1072683§	10-100 U1	1	3	5	7½	**28.00**

Approximate shipping weight of starter, 20 lbs.

*Catalog number does not include heaters; select heaters from the following table.

†These starters may be used on 2-phase, 4-wire circuits by running one wire direct to motor.

‡This style has one tapped hole for 1-inch conduit in each end.

§This style has two tapped holes for 1-inch conduit in bottom.

Omission price of heaters...**$0.60** Each

Starters with tapped holes for ¾-inch or 1¼-inch conduit may be supplied at listed prices on special order.

HEATERS FOR "DE-ION" MOTOR WATCHMAN

Select from the table below for average applications. For motors rated 50° or 55°C. select heaters approximately one size smaller than shown, but always rated above the full load current.

Catalog Number of Heater	Full Load Current of Motor Amperes	Heater Code and Approximate Trip Rating of Heater
966465	0.55 to 0.62	AA 0.71
966466	0.63 to 0.71	BB 0.82
966467	0.72 to 0.79	AC 0.93
966468	0.80 to 0.89	AD 1.0
966469	0.90 to 0.99	AE 1.1
966470	1.00 to 1.04	AF 1.2
966471	1.05 to 1.18	AG 1.4
966472	1.19 to 1.32	AH 1.5
966473	1.33 to 1.49	AI 1.7
966474	1.50 to 1.71	AK 1.9
966475	1.72 to 1.89	AL 2.1
966476	1.90 to 2.09	AM 2.5
966477	2.10 to 2.35	AN 2.7
966478	2.36 to 2.65	AO 3.0
966479	2.66 to 2.98	AP 3.4
966480	2.99 to 3.35	AR 3.8
966481	3.36 to 3.75	AS 4.3
966482	3.76 to 4.21	AT 4.8
966483	4.22 to 4.71	AU 5.4
966484	4.72 to 5.33	AW 6.1
966485	5.34 to 5.94	AX 6.8
966486	5.95 to 6.63	AY 7.7
966487	6.64 to 7.52	AZ 8.5
966488	7.53 to 8.51	BA 9.6
966489	8.52 to 9.31	BB 11.0
966490	9.32 to 10.5	BC 12.0
966491	10.6 to 11.5	BD 13.0
966492	11.6 to 12.4	BE 15.0
966493	12.5 to 13.4	BF 16.0
966494	13.5 to 14.9	BG 18.0
966495	15.0 to 17.5	BH 20.0
966496	17.6 to 18.2	BI 21.0
966497	18.3 to 19.0	BK 23.0
966498	19.1 to 20.5	BL 25.0
966499	20.6 to 22.6	BM 27.0

Price of heaters, any rating..........................**$0.60** Each

WESTINGHOUSE A-C. MANUAL STARTERS

CLASS 10-700 TYPE A AUTOSTARTERS NON-REVERSING SERVICE

For Squirrel-Cage Polyphase Induction Motors

5 to 200 Hp., 2 and 3-Phase; 50 or 60 Cycles
220, 440 Volts

A manually-operated, reduced-voltage starting, non-reversing autotransformer type of starter, used to start and completely protect squirrel-cage motors. Applied wherever reduced-voltage starting is necessary, in order to limit starting current because of size of motor or local power company restrictions, or to limit starting torque to suitable values. Used where the frequency of operation does not exceed 1 start every 4 minutes for an hour, and the motor accelerates in 15 seconds. Provides greater starting torque per ampere starting current, drawn from the line, than any other type of reduced-voltage motor starter.

One handle controls all starting and stopping operations. Autotransformer taps permit adjusting of starting voltage with consequent adjustment of starting torque to suit application. Starters, size Nos. 1, 2 and 3, are supplied with auto-transformers having two starting taps, giving 65% and 80% of line voltage, and approximately 42% and 64%, respectively, of the current and torque obtained at full voltage. Starters, sizes Nos. 4 and 5, are supplied with autotransformers having three taps giving 50%, 65% and 80% of line-voltage, with approximately 25%, 42% and 64% respectively, of the current and torque at full-voltage. Starters, sizes Nos. 1, 2, 3 and 4, are shipped with the starting connections made to the 80% taps; size No. 5 to the 65% tap. Severe voltage dips or power failure cause disconnecting of motor. Motor cannot be started unexpectedly on return of normal power. Inverse-time-limit relay protects motor from injurious overload conditions or single-phase running. It resets automatically. Rolling contacts prevent arcing between the contact surfaces, prolonging contact life. Proper starting is assured because simple interlock arrangement necessitates proper cycle of starting operations. Handle cannot be thrown to the "run" position without going through the "start" operation.

AUTOSTARTER, JUNCTION BOX, HEATERS, OIL

Hp.	Size	Price Each	Hp.	Size	Price Each
220 Volts—2 and 3 Phase					
5	1	**$101.00**	30	2	**$109.00**
7½	1	**101.00**	40	3	**185.00**
10	1	**101.00**	50	3	**191.00**
15	2	**101.00**	60	5	**198.00**
20	2	**105.00**	75	5	**205.00**
25	2	**105.00**	100	5	**279.00**
440 and 550 Volts—2 and 3 Phase					
5	1	**$101.00**	50	3	**$115.00**
7½	1	**101.00**	60	4	**198.00**
10	1	**101.00**	75	4	**205.00**
15	2	**101.00**	100	4	**205.00**
20	2	**105.00**	125	5	**223.00**
25	2	**105.00**	150	5	**223.00**
30	2	**109.00**	200	5	**305.00**
40	3	**115.00**			

Tabular listing on following page.

WESTINGHOUSE AUTO STARTERS

CLASS 10-700, TYPE A

Auto-Transformer Type—For Squirrel-Cage Induction Motors—Non-Reversing

Hp.	Poles	60 Cycles Starter Only 3-Phase Cat. No.	60 Cycles Junction Box Cat. No.	60 Cycles Gals. of Oil	50 Cycles Starter Only 3-Phase Cat. No.	50 Cycles Junction Box Cat. No.	50 Cycles Gals. of Oil	†Heaters 60, 50 Cycles 3-Phase Cat. No.	†Heaters No. Req.
				220 Volts					
7½	2–8	**521032**	**383078**	1½*	**521056**	**383079**	2½*	**474426**	2
7½	10	**521032**	**383078**	1½*	**521056**	**383079**	2½*	**474427**	2
10	2–6	**521032**	**383078**	1½*	**521056**	**383079**	2½*	**501695**	2
10	8	**521032**	**383078**	1½*	**521056**	**383079**	2½*	**474429**	2
15	2–6	**521038**	**383079**	2½*	**521057**	**383079**	2½*	**760593**	2
15	8–12	**521038**	**383079**	2½*	**521057**	**383079**	2½*	**474432**	2
20	2–8	**521039**	**383079**	2½*	**521058**	**383079**	2½*	**474433**	2
20	10–12	**521039**	**383079**	2½*	**521058**	**383079**	2½*	**474434**	2
25	2	**521039**	**383079**	2½*	**521058**	**383079**	2½*	**474436**	2
25	4	**521039**	**383079**	2½*	**521058**	**383079**	2½*	**474434**	2
30	2–10	**521040**	**383079**	2½*	**577171**	**383080**	3*	**539018**	2
30	12	**521040**	**383079**	2½*	**577171**	**383080**	3*	**474433**	4
				440 Volts					
7½	2–8	**521033**	**383078**	1½*	**521059**	**383079**	2½*	**474420**	2
7½	10	**521033**	**383078**	1½*	**521059**	**383079**	2½*	**474421**	2
10	2–6	**521033**	**383078**	1½*	**521059**	**383079**	2½*	**474422**	2
10	8	**521033**	**383078**	1½*	**521059**	**383079**	2½*	**502915**	2
15	2–6	**521041**	**383079**	2½*	**521060**	**383079**	2½*	**474425**	2
15	8	**521041**	**383079**	2½*	**521060**	**383079**	2½*	**474426**	2
20	2–6	**521042**	**383079**	2½*	**521061**	**383079**	2½*	**501695**	2
20	8–12	**521042**	**383079**	2½*	**521061**	**383079**	2½*	**474429**	2
25	2	**521042**	**383079**	2½*	**521061**	**383079**	2½*	**501694**	2
25	4	**521042**	**383079**	2½*	**521061**	**383079**	2½*	**474429**	2
30	2–10	**521043**	**383079**	2½*	**577173**	**383080**	3*	**760593**	2
30	12	**521043**	**383079**	2½*	**577173**	**383080**	3*	**474432**	2
40	2	**577178**	**383080**	3*	**577174**	**383080**	3*	**474433**	2
40	4	**577178**	**383080**	3*	**577174**	**383080**	3*	**474432**	2
50	2–12	**577178**	**383080**	3*	**577174**	**383080**	3*	**474436**	2
60	2–12	**574585**	**383081**	3	**574583**	**383081**	3	**539018**	2

*Oil is not required for these ratings and is not furnished unless specified by the customer.
†Heaters are not required for these ratings. Series coil relays are included in auto-starter style.
220-volt starters available in 40, 50, 60, 75 and 100 hp. Data on request.
440-volt starters available in 75, 100, 125, 150 and 200 hp. Data on request.

WESTINGHOUSE MANUAL STARTERS

CLASS 10-300 REVERSING DRUM CONTROLLERS

FOR A.C. AND D.C. MOTORS

Across-the-Line Type

For Squirrel-Cage Polyphase Induction Motors

15 Hp.—110, 220 Volts; 10 Hp.—440, 550 Volts

All Frequencies, Two and Three Phase

Class 10-300 reversing starters are used to connect small two or three-phase, squirrel-cage induction motors directly to the line. Used with motors for driving machine tools, woodworking machines and similar applications.

3-Phase—Open 2 Lines

D-C.—Open Armature Circuit Only

Cat. No.	Drum Type No.	Maximum H.P. 110 Volts	Maximum H.P. 220 Volts	Maximum H.P. 440-550 Volts	Method of Oper.●	Price Each
294286	N-104-A	3	5	2▲	*	**$12.00**
294287	N-104-B	3	5	2▲	**	**14.00**
505174	N-104-D	3	5	2▲	†	**12.00**

2 and 3-Phase—Open 3 Lines

D-C.—Open Armature and Shunt Field

Cat. No.	Drum Type No.	Maximum H.P. 110 Volts	Maximum H.P. 220 Volts	Maximum H.P. 440-550 Volts	Method of Oper.	Price Each
294572	N-103-A	3	5	2▲	*	**$12.00**
294573	N-103-B	3	5	2▲	**	**14.00**
505173	N-103-E	3	5	2▲	†	**12.00**
294289	N-103-C	3	5	2▲	*	**12.00**
252563	N-301-A	10	15	10	*	**35.00**
204113	N-301-C	10	15	10	**	**35.00**
252564	N-301-B	10	15	10	‡	**35.00**
409340	N-301-D	10	15	10	§	**35.00**
308795	N-301-E	10	15	10	¶	**35.00**
204548	N-301-F	10	15	10	■	**42.00**

2-Phase—Open 4 Lines

D-C.—Open Armature and Both Sides Shunt Field

Cat. No.	Drum Type No.	Maximum H.P. 110 Volts	Maximum H.P. 220 Volts	Maximum H.P. 440-550 Volts	Method of Oper.	Price Each
204123	N-304-A	10	15	10	*	**38.00**
204124	N-304-B	10	15	10	‡	**38.00**

3-Phase—With Reset Contacts—Open 2 Lines

D-C.—Open Armature Circuit Only; Reset May Be Used for Dynamic Braking

Cat. No.	Drum Type No.	Maximum H.P. 110 Volts	Maximum H.P. 220 Volts	Maximum H.P. 440-550 Volts	Method of Oper.	Price Each
252565	N-301-H	10	15	10	*	**35.00**
252566	N-301-J	10	15	10	‡	**35.00**

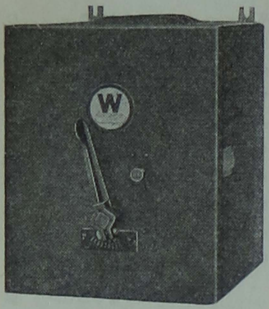
●440 and 550-volt ratings apply only to polyphase A-C. circuits. ▲440-volt A-C. only. *Standard handle. **Spring return. †Straight handle. ‡Shaft extension. §5-inch rope wheel, spring return. ¶Non-return forward, spring return reverse. ■Oversize bearing and shaft extension.

WESTINGHOUSE A-C. MANUAL STARTERS AND CONTROLLERS

NON-REVERSING SERVICE
CLASS 12-012 STARTING RHEOSTAT
CLASS 12-016 SPEED REGULATING RHEOSTAT

For Wound-Rotor Polyphase Induction Motors

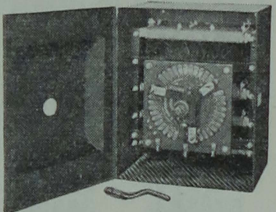
½ to 25 H.P.—Secondary Control Only



Class 12-012

Class 12-012 starting and class 12-016 speed regulating rheostats are used to control the secondary of polyphase wound-rotor induction motors. Linestarters are recommended as primary switches and can be used in conjunction with both rheostats. For constant torque service, speed regulating rheostats cover such applications as machine tools, plunger pumps, etc. For varying torque service, they are used with fans, blowers, centrifugal pumps, and other applications where the torque varies with cube of speed.

Starting Rheostat: To start motor, move arm to first point against a spring tension. Further movement to the right cuts out resistance at each point. At the last point, a mechanical latch holds it on. To stop motor, press a button on front panel of rheostat.



Class 12-016

Speed Regulating Rheostat: Used to operate motor below full speed. Can obtain 50% speed reduction for either varying or constant torque applications. Face plate is of moisture-resisting molded composition panel. Stationary reversible contact segments and operating arm are mounted on it. Contacts of moving arm are round copper plungers and easily removable. Shaft operated by removable arm extends through front cover. Speed regulating rheostats use Type M edge-wound resistors which permit effective heat dissipation. All rheostats are arranged for wall mounting. Small rheostats below 10 hp. are mounted in a ventilated sheet steel cabinet. Larger rheostats from 10 to 25 hp. are mounted in a light steel structure.

2 and 3-Phase—60, 50 and 25 Cycles
220, 440 and 550 Volts

Maximum Secondary Volts, 600; Maximum Secondary Amperes, 100

		Class 12-012 Starting Rheostat NEMA Resistor No. 115		Class 12-016 Speed Regulating Rheostats Varying Torque NEMA Resistor No. 93		Constant Torque NEMA Resistor No. 95	
Hp.	No. of Regulating Points	Wt. Lbs.	Price Each	Wt. Lbs.	Price Each	Wt. Lbs.	Price Each
½	7	45	**$33.00**	45	**$46.00**	45	**$46.00**
¾	7	45	**33.00**	45	**46.00**	45	**46.00**
1	7	45	**33.00**	45	**46.00**	45	**46.00**
1½	7	45	**33.00**	45	**46.00**	45	**46.00**
2	7	45	**33.00**	45	**53.00**	45	**53.00**
3	7	45	**33.00**	50	**53.00**	50	**53.00**
5	7	45	**36.00**	50	**74.00**	50	**74.00**
7½	9	50	**63.00**	70	**87.00**	70	**87.00**
10	12	50	**63.00**	70	**95.00**	70	**95.00**
15	12	50	**90.00**	70	**116.00**	70	**116.00**
20	12	50	**90.00**	90	**132.00**	90	**132.00**
25	12	50	**118.00**	90	**160.00**	90	**160.00**

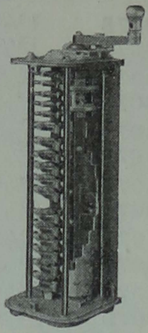
Overload and low-voltage protection by addition of Class 11-200 Linestarter, omitting the push-button.

WESTINGHOUSE A-C. MANUAL STARTERS AND CONTROLLERS

NON-REVERSING SERVICE
CLASS 12-300 TYPE A DRUM CONTROLLER

Starting and Speed Regulating
For Wound-Rotor Polyphase Induction Motors

2 to 300 Hp.,—75, 150, 300 Amperes—220, 440, 550 Volts—2 or 3-Phase—60 or 50 Cycles—Secondary Control Only



Class 12-300 (Cover Removed)

Used for controlling the secondary of two or three-phase wound-rotor induction motors and may be used for either starting or speed regulating duty, depending upon the resistor used. Extensively used on motors driving centrifugal pumps, fans, crushers, kilns, and similar apparatus. Controllers must be used with separate primary switches. Current path from finger tips to terminals of incoming wires is continuous. Finger tips are adjustable for wear. Eleven points are provided and motor may be operated continuously on any point. Operating heads are interchangeable—horizontal handle or bevel gear.

Starting Duty: The bringing of motor up to speed by gradually cutting out control resistance until all the resistance in the secondary circuit is cut out, is called starting duty.

Speed Regulating Duty: The continuous operation of the motor with external resistance in the secondary circuit, thereby obtaining a speed less than full load speed of the motor (and which depends on the load and the ohmic value of the resistor in the circuit), is called speed regulating duty.

For primary control, these controllers require the use of a separate device, such as a 3-pole F-10 circuit breaker with low voltage overload and electric lockout attachments, or Class 11-200 Linestarter.

Class 12-300 Drums and Standard Resistors

Maximum Secondary Volts 1000
All Frequencies

	Starting Duty Drum with horizontal handle, conduit box				*Speed Regulating Duty Drum with horizontal handle, conduit box			
	Grid Resistor Class 12-790 NEMA No. 134-135		Type M Resistor Class 12-795 NEMA No. 134-135		Grid Resistor (a) Class 12-790-C NEMA No. 93 or (b) Class 12-790-E NEMA No. 95		Type M Resistor (a) Class 12-795-C NEMA No. 93 or (b) Class 12-795-E NEMA No. 95	
Hp.	Price Each	Wt. Lbs.	Price Each	Wt. Lbs.	Price Each	Wt. Lbs.	Price Each	Wt. Lbs.
2	**$110.00**	155	**$113.00**	150	....	......	**$113.00**	140
3	**110.00**	155	**113.00**	150	....	......	**113.00**	140
5	**110.00**	155	**113.00**	150	....	......	**119.00**	140
7½	**112.00**	155	**115.00**	150	**$124.00**	175	**130.00**	150
10	**112.00**	155	**115.00**	150	**124.00**	175	**141.00**	150
15	**119.00**	160	**122.00**	155	**155.00**	185	**158.00**	150
20	**149.00**	160	**159.00**	155	**184.00**	185	**205.00**	150
25	**150.00**	160	**165.00**	155	**214.00**	225	**228.00**	215
30	**151.00**	175	**178.00**	155	**228.00**	325	**251.00**	350
40	**162.00**	175	**186.00**	160	**243.00**	400	**285.00**	350
50	**167.00**	190	**186.00**	160	**274.00**	450	**331.00**	350
60	**170.00**	190	**207.00**	160	**304.00**	725	**352.00**	600
75	**172.00**	200	**207.00**	165	**363.00**	950	**409.00**	700
100	**189.00**	250	**248.00**	180	**424.00**	1200	**505.00**	900
125	**280.00**	260	**356.00**	200	**547.00**	1450	**686.00**	1175
150	**284.00**	450	**378.00**	350	**631.00**	1800	**783.00**	1500
200	**304.00**	475	**437.00**	350	**782.00**	2150	**974.00**	1850
250	**339.00**	490	....	......	**896.00**	2550	....	....
300	**373.00**	525	....	......	**1032.00**	3000	....	....

Geared right angle drive without handwheel may be supplied for **$43.** Order Cat. No. 665577.

Vertical Handle may be supplied for **$43.** Order Cat. No. 761599.

Hand wheel for use with geared right angle drive, for panel mounting, **$13.**

* (a) Class 12-790-C NEMA. No. 93: 50% speed reduction on varying torque applications (fans and centrifugal pumps) where the torque is approximately 35% full load torque at half speed.

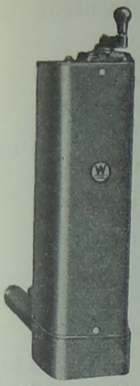
(b) Class 12-790-E A.E.S. No. 95: 50% speed reduction with 80% to 100% of a full load torque at half speed.

WESTINGHOUSE A-C. MANUAL STARTERS AND CONTROLLERS

CLASS 12-700 TYPE A DRUM CONTROLLERS — REVERSING SERVICE

For Wound-Rotor Polyphase Induction Motors Starting and Speed Regulating

2 to 200 Hp. — 75, 150, 300 Amperes — 220, 440, 550 Volts — 2 and 3-Phase

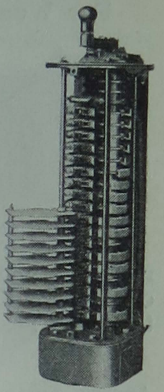


Class 12-700 Controller

Used for controlling wound-rotor induction motors on cranes, hoists, turntables, bridges and in similar applications where reversing service is required. They control both the primary and secondary circuits of the motors. Three-phase controllers open two wires to the motor in the "off" position, and two and three-phase controllers open three wires. Where it is required that all wires of a three-phase circuit be opened, a two and three-phase controller should be used.

Standard Class 12-700 controllers (the plain type numbers) are provided with an insulated reset contact in the "off" position, and with two extra segment supporting discs, only one in Types A-12-725 and A-12-726, so that additional circuits for limit switch protection in both directions of operation, brake operation, interlocking, etc., may be added when desired. The reset contact is a cam switch.

Operating heads of all types are interchangeable and may be mounted easily in any of four positions to suit the particular application. A conduit box is included in all prices but may be omitted if it is not desired. There is no deduction from price. Dust-tight construction consists of heavy felt gaskets on the front cover, a special back plate and ring clamps for holding the cover tightly in place.



With Cover Removed

Resistors should be added separately from Class 12-790 or Class 12-795. Resistors with a permanent slip section are recommended for crane and hoist duty. The 50, 75 and 150-ampere drums are designed for starting the motor with the resistor connected either single-phase or three-phase on the first point of the controller, giving a choice of starting torque to best fit application. The 300-ampere drum is arranged for three-phase starting.

Standard Construction

1—Reversing: Primary and secondary control. 2—Wall or floor mounting, with or without conduit box. 3—Interchangeable operating heads of many types. 4—Unusual ease of operation made possible by ball and roller bearings. 5—Arranged for series limit switch protection. 6—Reduced maintenance expense and doubled contact life obtained by new reversible double-duty contact segments. 7—Renewable finger tips, adjustable for wear and self-aligning. 8—Overload and low voltage protection by addition of Class 11-200 Linestarter, omitting the pushbutton.

When ordering: Specify catalog and class numbers, and type number of drums. Enter separate item for operating head by catalog number, and for conduit box if desired. Also enter separate items for resistors, linestarter, limit switch contactors, brakes, limit switches, etc., as desired.

Class 12-700 Standard Reversing Drum Controllers

2 and 3-Phase — Limit Switch Protection▲ — 220, 440, and 550 Volts

Amperes Primary and Secondary Continuous	Amperes Primary and Secondary Intermittent	Maximum Horsepower Intermittent 220 Volts	Maximum Horsepower Intermittent 440-550 Volts	No. of Points Forward and Reverse	Price Each Without Handle† With Conduit Box	Approx. Ship. Wt. Lbs.	3-Phase Without Handle† or Conduit Box Open 2 Lines Type	3-Phase Without Handle† or Conduit Box Open 2 Lines Cat. No.	2 and 3-Phase Without Handle† or Conduit Box Open 3 Lines Type	2 and 3-Phase Without Handle† or Conduit Box Open 3 Lines Cat. No.	Conduit Box Cat. No.	Add for Dust-Tight Construction
°50	50	10	10	5	$ 59.00	85	°A-12-702	778775	°A-12-722	778773	778777	$22.00
75	95	30	30	6	106.00	100	A-12-752	1129377	A-12-762	1129382	778777	22.00
75	95	30	30	7	116.00	150	A-12-703	764316	A-12-723	764340	596931	22.00
150	190	60	75	7	193.00	190	A-12-704	764324	A-12-724	764364	596931	28.00
300	380	100	200	9	‡392.00	425	A-12-706	‡805843	A-12-726	‡768040	768039	42.00

°Resistor with permanent slip section must be used with these types. Not suitable for continuous speed regulating service. Use Types A-12-752 or A-12-762.

*The intermittent ratings may be used with intermittent rated motors, for crane and similar services where the running time is not over 50% of the total time, and the maximum continuous running time is not over five minutes.

†Add the desired type of operating head from table below.

▲Shunt limit switch protection — one direction of operation — by addition of Class 15-825 2-Pole Contactor.

‡Price and style number include horizontal handle.

Operating Heads For Class 12-700 Drum Controllers

Type of Operating Head	For Types★ A-12-702, A-12-722 Price Each	For Types★ A-12-702, A-12-722 Cat. No.	For Types★ A-12-752, A-12-762 Price Each	For Types★ A-12-752, A-12-762 Cat. No.	For Types★ A-12-703, A-12-723 A-12-704, A-12-724 Price Each	For Types★ A-12-703, A-12-723 A-12-704, A-12-724 Cat. No.	Approx. Ship. Wt. Lbs.
Horizontal Handle ($8\frac{1}{16}$ inch radius)	----------	----------	----------	----------	$ 7.00	575462	30
Horizontal Handle ($5\frac{11}{16}$ inch radius)	$ 7.00	710125	$ 7.00	710154	7.00	710120	20
Vertical Handle with enclosed gears	47.00	941940	47.00	941940	47.00	941940	40
Vertical, with Auxiliary Contact	55.00	997797	55.00	997797	55.00	997797	40
Vertical Operating Head without Handle	43.00	----------	43.00	----------	43.00	----------	37
Rope Wheel with Spring Return	26.00	1034088	26.00	1034088	■47.00	■596930	30
Rope Wheel	25.00	792961	25.00	792961	37.00	666577	20
Horizontal Duplex Handle	----------	----------	----------	----------	66.00	----------	55
Horizontal Handle with Spring Return	26.00	792962	26.00	792962	■47.00	■596929	30
Geared Right Angle Drive 1:1 Gear Ratio	47.00	665577	47.00	665577	47.00	665577	40
Top Bearing Plate without Handle	4.00	----------	4.00	----------	4.00	----------	15

★Controllers of decimal type numbers take same operating head as standard controllers.

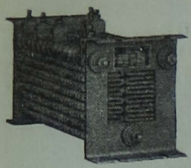
■Suitable for Types A-12-703, and A-12-723 only.

For catalog number and data on resistors to be used with these starters, see special bulletin furnished on request.

WESTINGHOUSE STANDARD RESISTORS

GRID CLASS 12-790

For Wound-Rotor Induction Motor Control



Resistor Frame Class 8405

These resistors are used for starting and speed regulating duty in the secondary of wound-rotor induction motors, with either manual or magnetic controllers. Resistor ratings follow the NEMA classification system which is based on a temperature rise of not exceeding 375° C. and rates resistors according to the amount of current passed on first point of controller, and the amount of time the resistors are in the circuit. See below:

TABLE 1

Approx. % F.L. Current on 1st Point	Starting Torque* 1-Ph. Stg.†	Starting Torque* 3-Ph. Stg.†	Resistor Classification Number: 10 Sec. on out of each 80 Sec.	Resistor Classification Number: 15 Sec. on out of each 60 Sec.	Resistor Classification Number: 15 Sec. on out of each 30 Sec.	Resistor Classification Number: Continuous Duty
25	15	25	131	151	171	91
50	30	50	132	152	172	92
70	40	70	133	153	173	93
100	55	100	134	154	174	94
150	85	150	135	155	175	95
200 or over	....	200	136	156	176	96

*In % of full load torque for wound-rotor motors.
†Refers to connections of the rotor circuit.

Resistor classification numbers are NEMA, and the duty cycles in this tabulation are more nearly in accord with actual practice than those in the older A.E.S. classification.

For convenience in listing resistors, Westinghouse adds the following sub letters: B indicates additional section for dynamic braking in off position; P indicates additional section for plugging; D indicates additional capacity for dynamic braking lowering. Additional capacity is also required for armature shunt points on D-C. and permanent slip sections on A-C.

Class 12-790 resistors may be selected for starting duty and for speed regulation duty. Following prices include separately mounted resistors commonly used with Class 12-700 drum switches:

TABLE 2

Ratings and Prices Class 12-790 Resistors
3-Phase—All Voltages—All Frequencies

	STARTING DUTY Class 12-790-A NEMA No. 134 Class 12-790-B NEMA No. 135			CONTINUOUS SPEED REGULATING DUTY Class 12-790-C NEMA No. 93 Class 12-790-E NEMA No. 95		
Hp.	Frame	Shpg. Wt. Lbs.	Price Each	Frame	Shpg. Wt. Lbs.	Price Each
2	1-A	30	**$16.00**	------	----	---------
3	1-A	30	**16.00**	------	----	---------
5	1-A	30	**16.00**	------	----	---------
7½	1-A	30	**18.00**	2-A	60	**$30.00**
10	1-A	30	**18.00**	2-A	60	**30.00**
15	1-A	35	**25.00**	3-A	100	**61.00**
20	1-A	35	**26.00**	3-A	100	**61.00**
25	1-A	35	**27.00**	6-A	190	**91.00**
30	1-A	50	**28.00**	6-A	210	**105.00**
40	1-A	50	**39.00**	6-A	240	**120.00**
50	2-A	65	**44.00**	9-A	320	**151.00**
60	2-A	65	**47.00**	12-A	600	**181.00**
75	2-A	65	**49.00**	12-A	700	**240.00**
100	3-A	90	**66.00**	15-A	950	**301.00**
125	6-A	200	**69.00**	12-B	1200	**336.00**
150	6-A	200	**73.00**	15-B	1550	**420.00**
200	6-A	225	**93.00**	18-B	1800	**571.00**
250	6-B	230	**128.00**	21-B	2150	**685.00**
300	6-B	275	**162.00**	27-B	2750	**821.00**

WESTINGHOUSE STANDARD RESISTORS

GRID CLASS 12-790

For Wound-Rotor Induction Motor Control

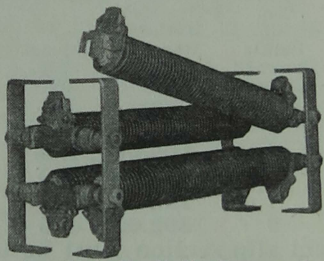
TABLE 2 — (Continued)

Ratings and Prices Class 12-790 Resistors
3-Phase — All Voltages — All Frequencies

	LIGHT INTERMITTENT DUTY Class 12-790-L NEMA No. 152 Class 12-790-M NEMA No. 153 Class 12-790-N NEMA No. 154			HEAVY INTERMITTENT DUTY Class 12-790-P NEMA No. 162 Class 12-790-R NEMA No. 163 Class 12-790-S NEMA No. 164		
Hp.	Frame	Shpg. Wt. Lbs.	Price Each	Frame	Shpg. Wt. Lbs.	Price Each
2	------	----	---------	------	----	---------
3	------	----	---------	------	----	---------
5	1-A	60	**$27.00**	1-A	60	**$30.00**
7½	1-A	60	**30.00**	2-A	85	**30.00**
10	1-A	60	**30.00**	2-A	85	**30.00**
15	2-A	85	**30.00**	3-A	120	**30.00**
20	2-A	85	**30.00**	3-A	120	**61.00**
25	2-A	85	**30.00**	6-A	240	**61.00**
30	3-A	120	**61.00**	6-A	240	**61.00**
40	3-A	120	**61.00**	6-A	240	**91.00**
50	6-A	240	**91.00**	9-A	320	**120.00**
60	6-A	240	**91.00**	6-B	450	**120.00**
75	6-A	240	**120.00**	6-B	600	**181.00**
100	9-A	320	**181.00**	9-B	750	**208.00**
125	6-B	600	**211.00**	9-B	950	**271.00**
150	9-B	950	**271.00**	9-B	1000	**330.00**
200	9-B	1000	**330.00**	12-B	1300	**361.00**
250	12-B	1300	**376.00**	15-B	1600	**451.00**
300	15-B	1600	**451.00**	18-B	1950	**532.00**

TYPE M EDGE WOUND — CLASS 12-795

Non-Breakable and Non-Corrodible



One Unit Partially Removed Type M Resistor Frame Class 12-795

These resistors consist of units or tubes assembled in standard length frames. A unit is a special non-corrodible alloy ribbon, wound edgewise and surrounding a porcelain insulator which in turn is reinforced by a flat steel support passing through it. Both ends of the steel support are notched so any unit can be removed from the frame without disturbing any others.

The construction of these resistors provides excellent radiation thereby eliminating the possibility of localized heating. The resistance ribbon has a negligible temperature coefficient which makes its hot and cold resistances practically the same.

Because of its unique construction, the resistor tube is almost unbreakable. Shattering any section of the porcelain has no effect upon its operation, as the helix requires only a fractional part of the support which it receives.

When ordering specify — (1) Class, Type and Catalog No. of drum switch, (2) N.E.M.A. Classification No., (3) Class No. of resistor, (4) Horsepower, voltage, frequency and number of phases, (5) Include open circuit secondary volts, full load secondary volts and full load secondary amperes of motor, (6) Application and any peculiarities of installation, (7) Any optional arrangements desired.

Additional ratings to meet the requirements of various applications will be furnished upon request.

WESTINGHOUSE STANDARD RESISTORS

TYPE M EDGE WOUND — CLASS 12-795
(Continued)

Non-Breakable and Non-Corrodible

For use with Classes 12-300 and 12-700 Controllers.

3-Phase — All Voltages — All Frequencies

	STARTING DUTY Class 12-795-A NEMA No. 134 Class 12-795-B NEMA No. 135		CONTINUOUS SPEED REGULATING DUTY Class 12-795-C NEMA No. 93 Class 12-795-E NEMA No. 95		LIGHT INTERMITTENT DUTY Class 12-795-L NEMA No. 152 Class 12-795-M NEMA No. 153 Class 12-795-N NEMA No. 154	
Hp.	Shpg. Wt. Lbs.	Price Each	Shpg. Wt. Lbs.	Price Each	Shpg. Wt. Lbs.	Price Each
2	25	**$19.00**	25	**$19.00**	25	**$19.00**
3	25	**19.00**	25	**19.00**	25	**19.00**
5	25	**19.00**	25	**25.00**	25	**19.00**
7½	25	**21.00**	25	**36.00**	25	**42.00**
10	25	**21.00**	35	**47.00**	25	**42.00**
15	25	**28.00**	50	**64.00**	35	**55.00**
20	25	**36.00**	50	**82.00**	35	**55.00**
25	25	**42.00**	60	**105.00**	35	**76.00**
30	25	**55.00**	100	**128.00**	50	**76.00**
40	35	**63.00**	125	**162.00**	55	**105.00**
50	35	**63.00**	125	**208.00**	60	**134.00**
60	35	**84.00**	175	**229.00**	60	**151.00**
75	50	**84.00**	210	**286.00**	80	**181.00**
100	60	**125.00**	275	**382.00**	100	**231.00**
125	80	**145.00**	350	**475.00**	150	**301.00**
150	100	**167.00**	420	**572.00**	170	**336.00**
200	125	**226.00**	550	**763.00**	200	**434.00**

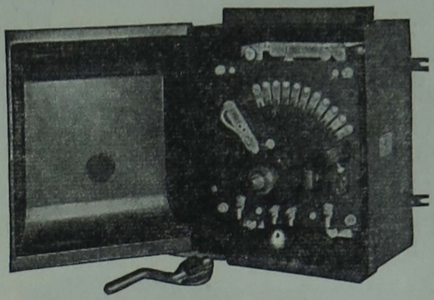
	HEAVY INTERMITTENT DUTY Class 12-795-P NEMA No. 162 Class 12-795-R NEMA No. 163 Class 12-795-S NEMA No. 164		LIGHT INTERMITTENT DUTY CRANE AND HOIST RESISTORS WITH PERMANENT SLIP RESISTANCE Class 12-795-F NEMA No. 152 Class 12-795-G NEMA No. 153 Class 12-795-H NEMA No. 154		HEAVY INTERMITTENT DUTY CRANE AND HOIST RESISTORS WITH PERMANENT SLIP RESISTANCE Class 12-795-I NEMA No. 162 Class 12-795-J NEMA No. 163 Class 12-795-K NEMA No. 164	
Hp.	Shpg. Wt. Lbs.	Price Each	Shpg. Wt. Lbs.	Price Each	Shpg. Wt. Lbs.	Price Each
2	25	**$19.00**	25	**$19.00**	25	**$19.00**
3	25	**19.00**	25	**19.00**	25	**19.00**
5	25	**32.00**	25	**19.00**	25	**32.00**
7½	25	**51.00**	25	**42.00**	35	**51.00**
10	35	**51.00**	35	**42.00**	35	**51.00**
15	35	**55.00**	35	**55.00**	50	**55.00**
20	55	**76.00**	50	**55.00**	60	**76.00**
25	55	**91.00**	50	**76.00**	60	**91.00**
30	60	**105.00**	60	**76.00**	80	**105.00**
40	100	**135.00**	80	**105.00**	100	**135.00**
50	100	**167.00**	80	**134.00**	125	**167.00**
60	125	**192.00**	100	**151.00**	160	**192.00**
75	150	**231.00**	125	**181.00**	200	**231.00**
100	175	**307.00**	160	**231.00**	250	**307.00**
125	250	**370.00**	225	**301.00**	320	**370.00**
150	300	**434.00**	260	**336.00**	400	**434.00**
200	350	**567.00**	325	**434.00**	490	**567.00**

WESTINGHOUSE D-C. MANUAL STARTERS

NON-REVERSING SERVICE
CLASS 7010 STARTING RHEOSTATS

For Series, Shunt and Compound Wound Motors

¼ to 150 Hp. — 115, 230 and 550 Volts



Class 7010 starting rheostats are used with series, shunt and compound wound direct current motors in non-reversing service. They are applicable to starting duty only and provide low-voltage protection to the motors.

Starting: Move rheostat handle slowly to right. Upon reaching full running position, it is held in place by a magnet whose coil is connected across the line. Handle is provided with a spring which prevents it from remaining in any position except "off" or "run." Remains in "run" position while power is on. Upon power failure, holding magnet releases and spring returns arm to "off" position.

These rheostats are completely enclosed and operated by an external arm. With exception of size 5-D, resistors are mounted on faceplate and entire rheostat can be removed from its enclosure as a unit. The resistor enclosure of the 5-D size is made up of solid side plates and expanded front, rear and top plates. The rear and top plates are easily removable. Terminals located at bottom and plainly marked.

Resistors: NEMA No. 114 are provided up to 50 hp. inclusive, and provide 100% first point. Suitable for 5-second starting once every 80 seconds. No. 135 are provided above 50 hp. and provide 150% torque on the first point. Suitable for 30-second starting once every four minutes.

Hp.	Frame No.	Shpg. Wt. Lbs.	Price Each	Hp.	Frame No.	Shpg. Wt. Lbs.	Price Each
			115 Volts				
¼	0-D	5	**$14.00**	10	3-D	50	**$51.00**
½	0-D	5	**14.00**	15	4-D	80	**55.00**
1	1-D	15	**14.00**	20	4-D	80	**72.00**
2	1-D	18	**20.00**	25	4-D	80	**88.00**
3	2-D	35	**20.00**	30	5-D	300	**94.00**
5	3-D	50	**25.00**	40	5-D	350	**212.00**
7½	3-D	50	**41.00**	50	5-D	350	**274.00**
			230 Volts				
¼	0-D	5	**14.00**	10	3-D	50	**46.00**
½	0-D	5	**14.00**	15	3-D	50	**53.00**
1	1-D	15	**14.00**	20	3-D	50	**53.00**
2	1-D	18	**20.00**	25	3-D	50	**58.00**
3	1-D	18	**20.00**	30	4-D	80	**72.00**
5	2-D	18	**25.00**	45	4-D	80	**94.00**
7½	2-D	35	**26.00**	50	4-D	80	**99.00**
			550 Volts				
¼	2-D	35	**25.00**	7½	2-D	35	**31.00**
½	2-D	35	**25.00**	10	3-D	50	**80.00**
1	2-D	35	**25.00**	15	3-D	50	**83.00**
2	2-D	35	**25.00**	20	3-D	50	**88.00**
3	2-D	35	**25.00**	25	4-D	50	**174.00**
5	2-D	35	**26.00**	30	-----	----	---------

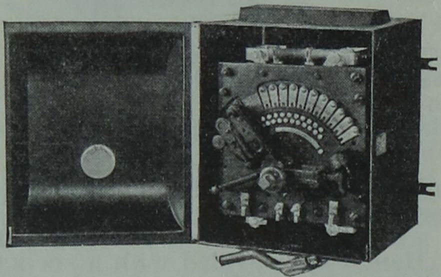
WESTINGHOUSE D-C. MANUAL STARTERS

NON-REVERSING SERVICE
CLASS 7210 SPEED REGULATING RHEOSTATS

Regulation by Field Control Only
For Constant and Adjustable Speed Motors

½ to 150 H.P. — 115 to 230 Volts

Class 7210 speed regulators are used for starting and regulating the speed of shunt and compound-wound, direct current motors for non-reversing service where speed adjustment by shunt-field control is desired. Suitable for use with motors up to 75 hp., 115 volts, and 150 hp., 230 volts, which do not require more than 150 percent full-load torque to start or longer than 30 seconds to reach full load speed. Speed may be increased up to four times full field.



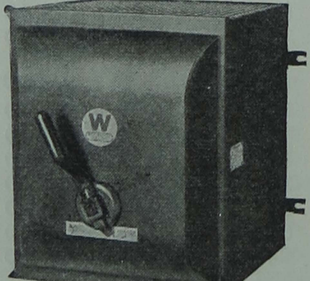
Hp.	Frame No.	Shpg. Wt. Lbs.	Price Each	Hp.	Frame No.	Shpg. Wt. Lbs.	Price Each
			115 Volts				
½	3-H*	50	**$40.00**	15	4-H*	90	**$85.00**
1	3-H*	50	**40.00**	20	4-H*	90	**132.00**
2	3-H*	50	**40.00**	25	4-H*	90	**132.00**
3	3-H*	50	**42.00**	30	5-H†	375	**142.00**
5	3-H*	50	**42.00**	40	5-H†	375	**290.00**
7½	3-H*	50	**51.00**	50	5-H†	375	**301.00**
10	3-H*	50	**85.00**	60	5-H†	375	**313.00**
			230 Volts				
½	3-H*	50	**40.00**	15	3-H*	50	**85.00**
1	3-H*	50	**40.00**	20	3-H*	50	**85.00**
2	3-H*	50	**40.00**	25	3-H*	50	**85.00**
3	3-H*	50	**42.00**	30	4-H*	90	**132.00**
5	3-H*	50	**42.00**	40	4-H*	90	**142.00**
7½	3-H*	50	**51.00**	50	4-H*	90	**150.00**
10	3-H*	50	**85.00**	60	5-H†	375	**301.00**

*24 Field Points.
†66 Field Points.

CLASS 7310 SPEED REGULATING RHEOSTAT NON-REVERSING SERVICE

Regulation by Armature Control Only
For Constant and Adjustable Speed Motors

115 to 230 Volts



Used for regulating the speed of shunt and compound-wound, non-reversing, direct current motors up to 20 hp., 115 volts, and 40 hp., 230 volts. For constant torque they provide 50 percent speed reduction below normal by armature control, at not less than 80 percent of full load torque. Furnished for either constant-torque (constant-current — variable speed) service such as machine tools, plunger pumps, etc., or for varying-torque, or fan-duty service, such as fans, blowers, small job presses, centrifugal pumps, etc. Prices upon request.

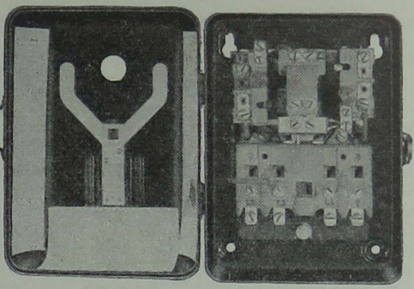
WESTINGHOUSE A-C. MAGNETIC STARTERS

CLASS 11-200 "DE-ION" LINESTARTERS

NON-REVERSING SERVICE

Sheet-Steel Enclosure—NEMA Type I
With Separate Push Button

For Squirrel-Cage Induction Motors — 1 to 200 H.P.
1, 2 and 3-Phase — 110, 220 and 440 Volts
50 and 60 Cycles



Class 11-200-S1
Standard Linestarter

"De-ion" Linestarters are designed for across-the-line starting of squirrel-cage induction motors, and as primary switches for wound rotor induction motors. They provide control by means of push button, presure gauge, float switch or similar pilot devices, with complete protection for motor, machine and operator. Typical applications include machine tools, pumps, fans and similar machines.

"De-ion" arc quenching action confines, divides and extinguishes the arc almost instantaneously as the circuit is broken. The usual flash and scattering of flame outside the arc box is eliminated. "De-ion" action not only stretches the arc, as by the old method, but confines and quenches it. As the specially-shaped contacts separate, a magnetic reaction occurs that forces the two stretching arcs to join across the stationary contacts.

Here, it rises immediately into the "De-ion" grids where it is "sliced" into a series of arcs. At the next zero point on the current cycle, the air adjacent to each grid is de-ionized instantly, the voltage per grid is insufficient to re-establish the current flow, and the arc is "out."

Safety is thus assured and higher overload capacity made possible. Pitting and burning of contacts and arc box are greatly reduced, and longer trouble-free life provided than ever before considered possible in standard motor starters.

Snap-action thermostatic overload relay of the famous bi-metal disc type with unchanging calibration, gives positive protection against all forms of overload. Relay is equipped with quick-break silver contacts and interchangeable heaters. Standard starter is equipped for hand reset, but can be made automatic simply by removal of reset rods.

Ordering Information

When ordering specify: (1) Catalog number of starter only; Nomenclature, Class Number; Horsepower, Voltage, Frequency, Number of phases, Rpm., Type and full load ampere rating of motor. (2) Enter separate item for heaters. (3) Enter separate item for push button station. Push-buttons included in these prices are: Sizes 1 to 4 inclusive, Class 15-020, Catalog Number 1072795; Number 1033337 (these are 3-wire buttons for low voltage protection.)

Tabular listing on following page.

WESTINGHOUSE A-C. MAGNETIC STARTERS

CLASS 11-200 "DE-ION" LINESTARTERS—NON-REVERSING SERVICE

Sheet-Steel Enclosure—NEMA Type I—With Separate Push Button

For Squirrel-Cage Induction Motors—1 to 200 H.P.—1, 2 and 3-Phase 110, 220 and 440 Volts—50 and 60 Cycles

Three-Phase

Size No.	MAXIMUM HORSEPOWER *2 and 3-Phase	MAXIMUM HORSEPOWER 1-Phase	Nomenclature Class	PRICE Starter, Heaters, P.B.	Omit P.B.	Approximate Dimensions in Inches Width	Height	Depth	ORDERING INFORMATION Starter Only Cat. No. 60 Cycles	Cat. No. 50 Cycles	Heater Table No. ■
				208-220 Volts—3-Phase—3 Pole—60 and 50 Cycles							
0	2	1½	11-200-S0	**$16.00**	**$2.00**	6⅝	8⅞	4⅝	**1128525**	**1128530**	3
1	5	3	11-200-S1	**18.00**	**2.00**	6⅝	8⅞	4⅝	**967452**	**967458**	3
2	15	7½	11-200-S2	**32.00**	**2.00**	12	17¼	6⅛	**999206**	**999212**	5
3	30	15	11-200-S3	**52.00**	**2.00**	14⅜	20	7¾	**941902**	**941908**	5
4	50	25	11-200-S4	**114.00**	**2.00**	14⅜	24½	9	**941922**	**941928**	5
5	75	....	11-200-F51	**232.00**	**6.00**	27½	28¼	21	**850648**	....	6C
5	100	....	11-200-F52	**232.00**	**6.00**	27½	28¼	21	**850650**	....	6C
				440-480 Volts—3-Phase—3 Pole—60 and 50 Cycles							
0	2	....	11-200-S0	**$16.00**	**$2.00**	6⅝	8⅞	4⅝	**1128526**	**1128531**	3
1	7½	5	11-200-S1	**18.00**	**2.00**	6⅝	8⅞	4⅝	**967453**	**967459**	3
2	25	10	11-200-S2	**32.00**	**2.00**	12	17¼	6⅛	**999207**	**999213**	5
3	50	25	11-200-S3	**52.00**	**2.00**	14⅜	20	7¾	**941903**	**941909**	5
4	100	....	11-200-S4	**114.00**	**2.00**	14⅜	24½	9	**941923**	**941929**	5
5	150	....	11-200-F51	**232.00**	**6.00**	27½	28¼	21	**850649**	....	6C
5	200	....	11-200-F52	**232.00**	**6.00**	27½	28¼	21	**850651**	....	6C

*May be used on 2-phase, 4-wire circuits for these ratings by running one wire direct to motor.

Single-Phase

Size No.	Maximum Horsepower	No. of Poles	Nomenclature Class	PRICE Starter, Heaters, P.B.	Omit P.B.	Approximate Dimensions in Inches Width	Height	Depth	ORDERING INFORMATION Starter Only Cat. No. 60 Cycles	Cat. No. 50 Cycles	Heater Table No. ■
				110 Volts—Single Phase—2 and 4-Pole—60 and 50 Cycles							
0	1	2	11-200-S0	**$14.00**	**$2.00**	6⅝	8¾	4¾	**1128506†**	**1128507†**	3
1	1½	2	11-200-S1	**16.00**	**2.00**	6⅝	8⅞	4⅝	**973856†**	**973857†**	3
1	3	4	11-200-S1	**20.00**	**2.00**	6⅝	8⅞	4⅝	**973892†**	....	3
				208-220 Volts—Single Phase—2 and 4-Pole—60 and 50 Cycles							
0	1½	2	11-200-S0	**$14.00**	**$2.00**	6⅝	8¾	4¾	**1128506†**	**1128507†**	3
1	3	2	11-200-S1	**16.00**	**2.00**	6⅝	8⅞	4⅝	**973856†**	**973857†**	3
1	5	4	11-200-S1	**20.00**	**2.00**	6⅝	8⅞	4⅝	**973892†**	**973893†**	3

CLASS 11-200-S11—WITH BUILT-IN START-STOP PUSH BUTTON

WESTINGHOUSE
DE-ION
LINESTARTER
W W

Class 11-200-S11

These starters have built-in, 3-wire, 'start-stop" push buttons for use where remote control is not required.

They are for general industrial applications where dust, moisture or corrosive fumes are not excessive.

Ordering Information

When ordering, specify:
1—Catalog number of starter only; Nomenclature, Class Number; Horsepower, Voltage, Frequency, Number of phases, Rpm., Type and full load ampere rating of motor.

2—Enter separate item for heaters. Omission or selling price of heaters, per pair: **$1.20.**

NOTE: Standard enclosures are 6⅝x8⅞x4⅝ inches.

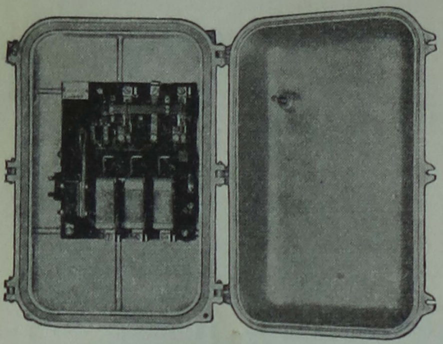
Size No.	MAXIMUM HORSEPOWER 3-Phase	2-Phase	1-Phase	No. of Poles	Nomenclature Class	PRICE Starter, Heaters	STANDARD ENCLOSURE Starter with Push Button Cat. No. 60 Cycles	Cat. No. 50 Cycles	Heater Table No. ■
				208-220 Volts—1, 2 and 3-Phase—2, 3 and 4-Pole—60 and 50 Cycles					
0	....	....	1½	2	11-200-S01	**$14.00**	**1128512†**	**1128513†**	3
1	....	....	3	2	11-200-S11	**16.00**	**973862†**	**973863†**	3
0	2	2	1½	3	11-200-S01	**16.00**	**1128555**	**1128560**	3
1	5	5	3	3	11-200-S11	**18.00**	**967486**	**967492**	3
0	....	2	....	4	11-200-S01	**19.00**	**1128577**	....	3
1	....	5	....	4	11-200-S11	**21.00**	**967498**	....	3
1	....	....	5	4	11-200-S11	**20.00**	**973898†**	**973899†**	3
				440-480 Volts—1, 2 and 3-Phase—2, 3 and 4-Pole—60 and 50 Cycles					
0	....	....	1½	2	11-200-S01	**$14.00**	**1128515**	**1128516**	3
1	....	....	5	2	11-200-S11	**16.00**	**973865**	**973866**	3
0	2	2	1½	3	11-200-S01	**16.00**	**1128556**	**1128561**	3
1	7½	7½	5	3	11-200-S11	**18.00**	**967487**	**967493**	3
0	....	2	....	4	11-200-S01	**19.00**	**1128578**	....	3
1	....	7½	....	4	11-200-S11	**21.00**	**967499**	....	3
1	....	....	7½	4	11-200-S11	**20.00**	**973901**	**973902**	3

†These starters have dual voltage coils for 110/220 volts.
■**See Heater Tables on Page 348.**

WESTINGHOUSE A-C. MAGNETIC STARTERS

CLASS 11-200 "DE-ION" LINESTARTERS—NON-REVERSING SERVICE—DUST AND WATER-TIGHT

Cast Iron or Boiler Plate Enclosures—NEMA Types III and IV
3-Phase, 3-Pole*—220-440 Volts—60 and 50 Cycles—With Separate Push Button


Class 11-200-W3 Linestarter

For use outdoors, in breweries, chemical plants, refineries, steel mills, cement mills, on construction work, and in other locations where weather-resisting, water-tight or dust-tight apparatus is required.

Ordering Information

When ordering specify:
1—Catalog number of starter only; Nomenclature, Class number; Horsepower, Voltage, Frequency, Number of phases, Rpm., Type and full load ampere rating of motor.
2—Enter separate item for heaters.
3—Enter separate item for push button station. The push buttons included in these prices are: Sizes 0 to 4 inclusive, Class 15-020, Type SD, Style 1089742. Size 5, Class 15-010, Type HD, Style 1033993. (These are 3-wire push buttons for low voltage protection).

Size No.	Maximum Horse-Power *2 and 3-Phase	Nomenclature Class	Price Starters, Heaters, Water-Tight P.B.	Omit P.B.	Case	Approximate Dimensions in Inches Width	Height	Depth	Ordering Information Starter Only Cat. No. 60 Cycles	Cat. No. 50 Cycles	Heater Table No. ■
					208-220 Volts						
0	2	11-200-W0	**$34.00**	**$7.00**	Cast Iron	9⅝	9⅝	5⅞	**1153715**	**1153720**	3
1	5	11-200-W1	**36.00**	**7.00**	Cast Iron	9⅝	9⅝	5⅞	**967524**	**967530**	3
2	15	11-200-W2	**64.00**	**7.00**	Cast Iron	15⅛	18⅜	6⅝	**999232**	**999238**	5
3	30	11-200-W3	**94.00**	**7.00**	Cast Iron	19	23⅝	9⅝	**967766**	**967772**	5
4	50	11-200-W4	**182.00**	**7.00**	Cast Iron	19	23⅝	9⅝	**967792**	**967798**	5
5	75	11-200-F3	**311.00**	**12.00**	Boiler Plate	35	54	22	....	....	6C
5	100	11-200-F3	**311.00**	**12.00**	Boiler Plate	35	54	22	....	....	6C
					440-480 Volts						
0	2	11-200-W0	**$34.00**	**$7.00**	Cast Iron	9⅝	9⅝	5⅞	**1153716**	**1153721**	3
1	7½	11-200-W1	**36.00**	**7.00**	Cast Iron	9⅝	9⅝	5⅞	**967525**	**967531**	3
2	25	11-200-W2	**64.00**	**7.00**	Cast Iron	15⅛	18⅜	6⅝	**999233**	**999239**	5
3	50	11-200-W3	**94.00**	**7.00**	Cast Iron	19	23⅝	9⅝	**967767**	**967773**	5
4	100	11-200-W4	**182.00**	**7.00**	Cast Iron	19	23⅝	9⅝	**967793**	**967799**	5
5	125	11-200-F3	**311.00**	**12.00**	Boiler Plate	35	54	22	....	....	6C
5	200	11-200-F3	**311.00**	**12.00**	Boiler Plate	35	54	22	....	....	6C

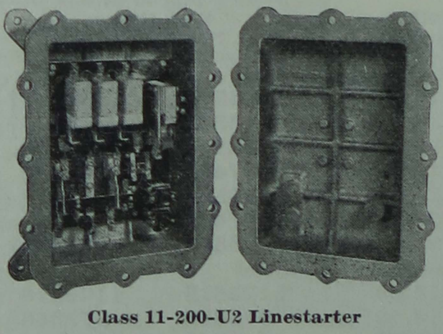
*These starters may be used on 2-phase, 4-wire circuits for these ratings by running one wire direct to the motor.

Omission, addition or selling price of heaters, per pair: **$1.20.**

■See Heater Tables on Page 348.

CLASS 11-200 "DE-ION" NON-REVERSING LINESTARTERS

For Class I Group D Hazardous Locations
Cast Iron Enclosures—NEMA Type VII
110-600 Volts—2 and 3-Phase—60 and 50 Cycles—With Separate or Built-in Push Button


Class 11-200-U2 Linestarter

For use where there are flammable gases or mixtures present, designated as Class I Group D locations.

Class I locations are described in Article 500 of the National Electrical Code as those in which flammable volatile liquids, highly flammable gases, mixtures or other highly flammable substances are manufactured, used, handled or stored in other than their original containers. Group D Atmospheres contain gasoline, naphtha, petroleum, alcohols, acetone, lacquer solvent vapors or natural gas.

When ordering specify:

1—Catalog number of starter only; Nomenclature, Class Number; Horsepower, Voltage, Frequency, Number of phases, Rpm., Type and full load ampere rating of motor.

2—Enter separate items for heaters.

3—Enter separate items for push button station. The push button included in these prices is: Sizes 1 to 4 inclusive, Class 15-010, Type HD, Style 1072960.
(This is a 3-wire push button for low voltage protection.)

Tabular listing on following page.

WESTINGHOUSE A-C. MAGNETIC STARTERS

CLASS 11-200 "DE-ION" LINESTARTERS—NON-REVERSING SERVICE

For Class I Group D Hazardous Locations
Cast Iron Enclosures—NEMA Type VII—(Continued)

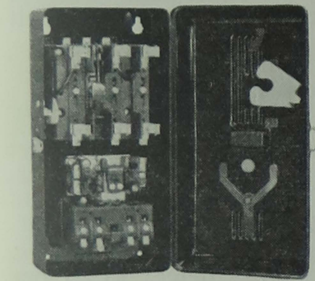
Maximum HP. 3-Ph.	Starter with Separately Mounted Push Button: Nomenclature Class	Starter Only: Cat. No. 60 Cycles	Starter Only: Cat. No. 50 Cycles	PRICE Heaters and P.B.	Starter with Built-in Push Button: Nomenclature Class	Starter Only: Cat. No. 60 Cycles	Starter Only: Cat. No. 50 Cycles	PRICE Heaters and P.B.	Approximate Dimensions in Inches: Width	Height	Depth	Heater Table No. ■
					110 Volts							
3	11-200U1	**1089744**	**1089751**	**$ 64.00**	11-200U11	**1089757**	**1089764**	**$58.00**	$9\frac{5}{16}$	$11\frac{9}{16}$	$7\frac{1}{16}$	3
7½	11-200U2	**1089770**	**1089777**	**106.00**	11-200U21	**1089783**	**1089790**	**103.00**	15⅜	20⅜	7⅞	5
15	11-200U3	**1089796**	**1089803**	**152.00**	11-200U31	**1089809**	**1089816**	**149.00**	18¾	26⅛	$9\frac{13}{16}$	5
					208-220 Volts							
5	11-200U1	**1089746**	**1089752**	**$ 64.00**	11-200U11	**1089759**	**1089765**	**$58.00**	$9\frac{5}{16}$	$11\frac{9}{16}$	$7\frac{1}{16}$	3
15	11-200U2	**1089772**	**1089778**	**106.00**	11-200U21	**1089785**	**1089791**	**103.00**	15⅜	20⅜	7⅞	5
30	11-200U3	**1089798**	**1089804**	**152.00**	11-200U31	**1089811**	**1089817**	**149.00**	18¾	26⅛	$9\frac{13}{16}$	5
					440-480 Volts							
7½	11-200U1	**1089747**	**1089753**	**$ 64.00**	11-200U11	**1089760**	**1089766**	**$58.00**	$9\frac{5}{16}$	$11\frac{9}{16}$	$7\frac{1}{16}$	3
25	11-200U2	**1089773**	**1089779**	**106.00**	11-200U21	**1089786**	**1089792**	**103.00**	15⅜	20⅜	7⅞	5
50	11-200U3	**1089799**	**1089805**	**152.00**	11-200U31	**1089812**	**1089818**	**149.00**	18¾	26⅛	$9\frac{13}{16}$	5

Omission, addition or selling price of heaters, per pair: **$1.20.** Omission price of push button: **$11.00.**

■See Heater Tables on Page 348.

CLASS 11-204 "DE-ION" COMBINATION LINESTARTERS WITH FUSIBLE MOTOR CIRCUIT SWITCH

For Squirrel-Cage and Wound-Rotor Induction Motors



Class 11-204-S1 Combination Linestarter with Fusible Motor Circuit Switch

Combination Linestarters are used for starting squirrel-cage induction motors by connecting them direct to the line in all applications where the advantage of remote control is desired. They may also be used as primary switches for wound-rotor motors in combination with suitable secondary controllers.

The combination of motor circuit switch and circuit protective device in the same enclosure with the motor starter permits lower installation costs and reduces space required. Motor circuit switches will break locked rotor current of the largest motors with which they may be used.

Ordering Information

When ordering, specify:

1—Catalog number of combination starter only; Class Number; Horsepower, Voltage, Frequency, Number of phases, Rpm., Type and full load ampere rating of motor, and the application.

2—Enter separate item for 2 heaters; omission or separate selling price **$1.20** per pair.

3—Enter separate item for push button station:

Class 11-204-S	Style 1072795
Class 11-204-W1	Style 1089742
Class 11-204-Y1	Style 1072960

(All 3-wire buttons for low voltage protection.)

Sheet Steel Enclosures—NEMA Type I—3-Pole

Size No.	Maximum Horse-Power: 3-Ph.	1-Ph.	Maximum Fuse Size	Standard Starter, Class 11-204-S0, S1: PRICE Starter, Heaters, Push Button	Ordering Information, Starter Only: Cat. No. 60 Cycles	Cat. No. 50 Cycles	Starter with Test Jacks, Class 11-204-S03, S13: PRICE Starter, Heaters, Push Button	Ordering Information, Starter Only: Cat. No. 60 Cycles	Cat. No. 50 Cycles	Approx. Shp. Wt. Lbs.	Heater Table No. ■
						110 Volts					
0	1½	1	30	**$32.00**	**1128610**	**1128615**	**$39.00**	**1128622**	**1128627**	28	2
1	3	1½	60	**34.00**	**1128998**	**1129003**	**41.00**	**1129046**	**1129051**	28	2
						208-220 Volts					
0	2	1½	30	**32.00**	**1128611**	**1128616**	**39.00**	**1128623**	**1128628**	28	2
1	3	2	30	**34.00**	**1128987**	**1128992**	**41.00**	**1129035**	**1129040**	28	2
1	5	3	60	**34.00**	**1128999**	**1129004**	**41.00**	**1129047**	**1129052**	28	2
						440-480 Volts					
0	2	1½	30	**32.00**	**1128612**	**1128617**	**39.00**	**1128624**	**1128629**	28	2
1	7½	5	30	**34.00**	**1128988**	**1128993**	**41.00**	**1129036**	**1129041**	28	2
1	7½	5	60	**34.00**	**1129000**	**1129005**	**41.00**	**1129048**	**1129053**	28	2

Omission prices: push button, **$2.00**; 3-pole test plug, No. 698686, **$6.00**; 1-pole test plug, No. 698687, **$4.00.**

Class 11-204-W †Dust-Tight and Water-Tight Cast-Iron Enclosures— NEMA Types III and IV—Size No. 1—3-Pole

Maximum Horse-Power: 3-Ph.	1-Ph.	Max. Fuse Size	PRICE‡	Starter Only: Cat. No. 60 Cycles	Cat. No. 50 Cycles	Heater Table No. ■
			110 Volts			
1½	1	30	**$73.00**	**1153838**	**1153843**	2
3	1½	60	**75.00**	**1183070**	**1183075**	2
			208-220 Volts			
3	2	30	**75.00**	**1183059**	**1183064**	2
5	3	60	**75.00**	**1183071**	**1183076**	2
			440-480 Volts			
7½	5	30	**75.00**	**1183060**	**1183065**	2
7½	5	60	**75.00**	**1183072**	**1183077**	2

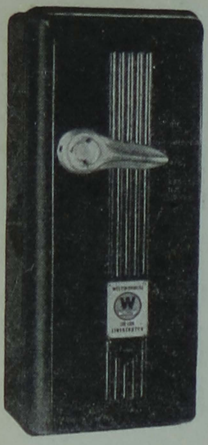
†Dust-tight starters tested and listed by Underwriters' Laboratories for Class II, Group H, Hazardous Locations, Class 11-204-Y1, may be supplied at same starter price, but push button Type HDE must be furnished: Price **$11.00.**

‡Price listed includes starter, heaters and water-tight push button.

■See Heater Tables on Page 348.

WESTINGHOUSE A-C. MAGNETIC STARTERS

CLASS 11-206 "DE-ION" COMBINATION LINESTARTERS WITH AB NOFUZE CIRCUIT BREAKER



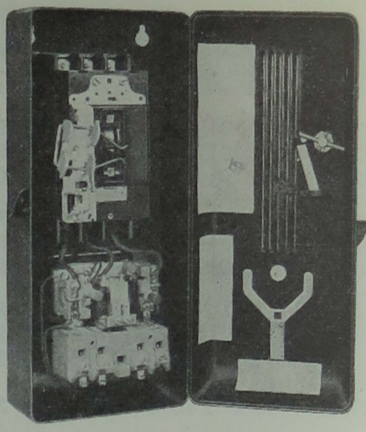
Class 11-206-S1
Closed

Sheet Steel Enclosures—NEMA Type I—For Squirrel-Cage and Wound-Rotor Induction Motors

Combination Linestarters are used for starting squirrel-cage induction motors by connecting them direct-to-the-line in all applications where the across-the-line method of starting is permissible and where the advantage of remote control is desired. They may also be used as primary switches for wound-rotor motors in combination with suitable secondary controllers.

The combination of the circuit breaker in the same enclosure with the motor starter permits lower installation costs and reduces the space required. AB Nofuze circuit breakers have a rated interrupting capacity of 10,000 amperes at 600 volts.

When thermal overload is omitted, the Thermoguard on the motor will provide normal running overload protection.



Class 11-206-S1
Open

When these combination starters are used with Thermoguard motors, the thermal overload relay may be omitted from the Linestarter in ratings above 2 hp., 220 volts and 5 hp., 440 and 550 volts.

Four types of enclosures are available: (1) The standard sheet-steel enclosure, (2) the dust-tight and splash-proof sheet steel enclosure, (3) the cast-iron water-tight and weatherproof enclosure, and (4) the cast-iron dust-tight enclosure for hazardous dust locations.

The standard enclosure is sheet steel. The dust-tight heavy sheet steel construction consists of hinged covers with copper alloy hinge and clamping bolts, and sponge rubber gasket. The water-tight cast iron enclosures are assembled with hinged covers with corrosion-resisting hinge and clamping bolts, live rubber gaskets and tapped holes for conduit. Dust-tight cast-iron enclosures for Class II Group G Hazardous Locations (dusty), have hinged covers with corrosion-resisting hinge and clamping bolts, wide metal-to-metal flanges, tapped holes for conduit, provision for locking, and are painted with aluminum paint. Doors of all enclosures are hinged on right-hand side, in order to provide the interlocking with the circuit breaker handle.

Ordering Information

When ordering specify:

1—Catalog number of combination starter only; Nomenclature, Class Number; Horsepower, Voltage, Frequency, Number of phases, Rpm., Type and full load ampere rating of the motor.

2—Enter separate item for heaters, 2 per starter. Omission or separate selling price: **$1.20** per pair.

3—Enter separate item for push button station. Sizes 1 to 4: Class 15-020, Type SD, Style 1072795. Size 5: Class 15-010, Type HD, Style 1033337. (This is a 3-wire button for low voltage protection.) Omission price of push button, sizes 1 to 4, inclusive: **$2.00** — Size 5: **$6.00.**

Class 11-206 — 3-Pole — Sheet Steel Enclosures — NEMA Type 1

With Separate Push Button

				STANDARD STARTER				STARTER WITH TEST JACKS				
Size No.	MAXIMUM HORSE-POWER 3-Ph.	MAXIMUM HORSE-POWER 1-Ph.	Circuit Brkr. Thermal Trip Setting	Nomenclature Class	PRICE Starter, Heaters, Push Button	ORDERING INFORMATION Starter Only Cat. No. 60 Cycles	ORDERING INFORMATION Starter Only Cat. No. 50 Cycles	Nomenclature Class	PRICE Starter, Heaters, Push Button	ORDERING INFORMATION Starter Only Cat. No. 60 Cycles	ORDERING INFORMATION Starter Only Cat. No. 50 Cycles	Heater Table No. ■
						208–220 Volts						
0	2	1½	15	11-206-S0	$37.00	1128635	1128640	11-206-S03	$44.00	1128647	1128652	2
1	5	3	35	11-206-S1	39.00	1091077	1091083	11-206-S13	46.00	1091276	1091282	2
2	10	5	50	11-206-S2	55.00	1106430	1106437	11-206-S23	62.00	1106457	1106464	5
2	15	7½	70	....	73.00	....	....	....	....	....	....	5
3	30	15	100	11-206-S3	95.00	967818	967824	11-206-S33	102.00	....	....	5
4	50	....	225*	11-206-S4	246.00	....	....	....	....	....	....	--
5	100	....	600*	11-206-F	470.00	....	....	....	....	....	....	--
						440–480 Volts						
0	2	1½	15	11-206-S0	40.00	1128636	1128641	11-206-S03	47.00	1128648	1128653	2
1	3	1½	15	11-206-S1	42.00	1091078	1091084	11-206-S13	49.00	1091277	1091283	2
1	7½	5	20	....	42.00	....	....	11-206-S23	65.00	1106460	1106465	5
2	25	10	50	11-206-S2	58.00	1106433	1106438	....	....	....	....	5
3	50	25	100	11-206-S3	101.00	967819	967825	11-206-S33	108.00	....	....	5
4	100	....	225*	11-206-S4	260.00	....	....	....	....	....	....	--
5	200	....	600*	11-206-F	480.00	....	....	....	....	....	....	--

*These sizes use standard thermal trip breakers, and values listed are frame sizes. Suitable trip elements will be applied on order.

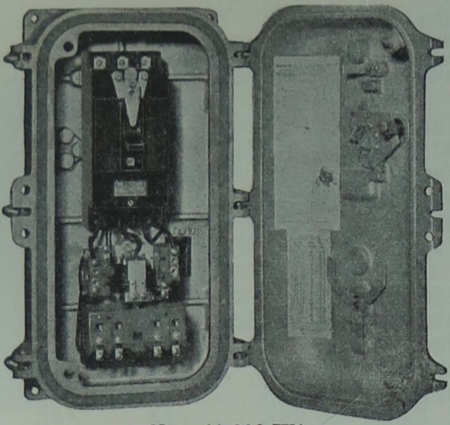
3-Pole Test Plug, Style 698686: **$6.00.** Single Pole Test Plug, Style 698687: **$4.00.**

■**See Heater Tables on Page 348.**

WESTINGHOUSE A-C. MAGNETIC STARTERS

CLASS 11-206 "DE-ION" COMBINATION LINESTARTERS WITH AB NOFUZE CIRCUIT BREAKER(Continued)

Dust-Tight and Water-Tight Enclosures, NEMA Types III and IV — 3-Pole With Separate Push-Button



Class 11-206-W1
Water-Tight Linestarter

Ordering Information

When ordering specify:

1—Catalog number of combination starter only; Class number (This is the Class number shown on top of the Catalog Number listing with the Size number added as a suffix; e.g. Class 11-206-W2), Horsepower, Voltage, Frequency, Number of phases, Rpm., Type and full load ampere rating of motor, and the application.

2—Enter separate item for 2 heaters per starter, Omission or separate selling price of heaters, **$1.20** per pair.

3—Enter separate item for push button station: Class 11-206-W, Style 1089742, Type SD. (This is 3-wire button for low voltage protection.)

				WATER-TIGHT, DUST-TIGHT CAST IRON ENCLOSURE NEMA TYPES III, IV			
	MAXIMUM HORSEPOWER		Circuit Brkr. Instantaneous Trip Setting	PRICE Starter, Heaters, Water-Tight Push Button	Class 11-206-W ORDERING INFORMATION Starter Only		Heater Table No. ■
Size No.	3-Ph.	1-Ph.			Cat. No. 60 Cycles	Cat. No. 50 Cycles	
				208-220 Volts			
1	5	3	160	**$76.00**	**1032402**	**1032409**	2
2	15	7½	450	**113.00**	**1032493**	**1032499**	5
3	30	15	900	**187.00**	**1032763**	**1032769**	5
				440-480 Volts			
1	7½	5	160	**79.00**	**1032403**	**1032409**	2
2	25	10	315	**113.00**	**1032494**	**1032650**	5
3	50	25	720	**194.00**	**1032764**	**1032770**	5

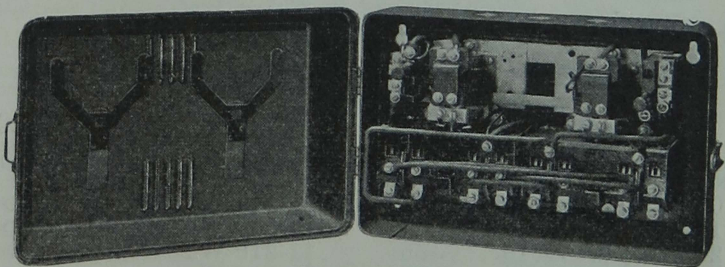
Push Button Omission Price: Class 11-206-W, **$7.00**.

■See Heater Tables on Page 348.

CLASS 11-210 "DE-ION" REVERSING LINESTARTERS

For Squirrel-Cage Induction Motors

NEMA Types I, III and IV Sheet Steel Enclosures—With Overload Protection



Class 11-210-S1
Reversing Linestarter

Used for across-the-line starting and reversing of squirrel-cage polyphase induction motors. For machine tools, conveyors, motor-operated windows and doors, and with other applications where remote control is desired by push button, limit switch, or other pilot device. The several types of these starters and their many modifications, make them applicable to a wide range of uses in industrial motor applications.

"De-ion" contactors are used on Sizes 1 to 4, inclusive. Sizes 5 and 6 have contactors with arc shields and powerful magnetic blowouts. All may be reset by hand from outside of enclosure. Size 0 and 1 may be made automatic by removing latch.

"W" is dust-tight, water-tight, weather-resisting, NEMA Types III and IV. Cast iron or boiler plate enclosure for dusty, wet or outdoor locations. These have hinged covers with corrosion-resisting hinge and clamping bolts, live rubber gaskets, tapped holes for conduits, and are painted with aluminum paint.

Plug-Stop and Jogging Service

When these starters are applied on duties where normal operation requires repeated opening of stalled motor current such as plug-stop or jogging (inching) duty requiring continued operation at a rate in excess of five per minute, the ratings in the middle of next page are recommended. These ratings are also recommended for rapid reversing cycles. Note that extra interlocks should be added.

(Tabular listing on following page.)

WESTINGHOUSE A-C. MAGNETIC STARTERS

CLASS 11-210 "DE-ION" REVERSING LINESTARTERS

Sheet Steel Enclosures—NEMA Type I—For Squirrel-Cage and Wound-Rotor Induction Motors

Class 11-210—3-Pole

Size No.	MAX. H.P.* 3-Ph.	Nomenclature Class	PRICE Starter, Heaters, P.B.	Omit P.B.	ORDERING INFORMATION Starter Only Cat. No. 60 Cycles	ORDERING INFORMATION Starter Only Cat. No. 50 Cycles	Approximate Dimensions in Inches Width	Approximate Dimensions in Inches Height	Approximate Dimensions in Inches Depth	Heater Table No. ■
					208-220 Volts					
0	2	11-210-S0	$ 36.00	$6.00	1128717	1128722	11	8⅝	4¾	2
1	5	11-210-S1	41.00	6.00	973702	973708	12⅞	8⅝	4¾	2
2	15	11-210-S2	73.00	6.00	999366	999372	12	27½	6	5
3	30	11-210-S3	111.00	6.00	983930	983936	15	31⅜	8⅛	5
4	50	11-210-S4	269.00	6.00	973943	973949	15	31⅜	8⅛	5
5	100	11-210-F	491.00	8.00	....	....	25	44	20	6C
					440-480 Volts					
0	2	11-210-S0	36.00	6.00	1128718	1128723	11	8⅝	4¾	2
1	7½	11-210-S1	41.00	6.00	973703	973709	12⅞	8⅝	4¾	2
2	25	11-210-S2	73.00	6.00	999367	999373	12	27½	6	5
3	50	11-210-S3	111.00	6.00	973931	973937	15	31⅜	8⅛	5
4	100	11-210-S4	269.00	6.00	973944	973950	15	31⅜	8⅛	5
5	200	11-210-F	491.00	8.00	....	....	25	44	20	6C

*For plug-stop or frequent jogging service, see tabular listing below.
Heaters must be ordered separately, two per starter. Omission or addition price of heaters, per pair, **$1.20.**

When ordering specify: 1—Catalog number of starter only; Nomenclature, Class number; Horsepower, Voltage, Frequency, Number of phases, Rpm., Type and full load current of the motor. 2—Enter separate item for heaters, except for Size 6 on which heaters are included. 3—Enter separate item for push button station. The push button stations included in these prices are: Class 11-210-S, Size 0 to 4 inclusive: Class 15-020, Type SD, Style 1089738. Sizes 5 and 6: Class 15-010, Type HD, Style 1033357. These are 3-button stations marked "Forward-Reverse-Stop."

Plug-Stop and Jogging Service

Size No.	Horsepower Rating Polyphase 220 Volts	Horsepower Rating Polyphase 440–600 Volts	Horsepower Rating Single Phase 220 Volts	Horsepower Rating Single Phase 440 Volts	Addition Price of Interlocks for Plug-Stop or Fast Reversing Service One Direction	Addition Price of Interlocks for Plug-Stop or Fast Reversing Service Both Directions
0	1	1	¾	¾	$3.00	$6.00
1	3	5	2	3	3.00	6.00
2	10	15	5	7½	4.00	8.00
3	20	30	10	15	5.00	10.00
4	30	60	....	....	5.00	10.00

For Special Conditions—Dust-Tight and Water-Tight Enclosures—NEMA Types III and IV

3-Phase—3-Pole—With Overload Protection—60 and 50 Cycles

When ordering specify:

1—Catalog number, Type of enclosure, Horsepower, Voltage, Frequency, Number of phases, Rpm., Type and full load ampere rating of the motor.

2—Enter separate item for heaters.

3—Enter separate item for push button station.

The push buttons included in these prices are:

For Class 11-210-W, Dust and Water-tight, Class 15-010, Type HDW, Style 1033995.

For Class 11-210-U for Hazardous Locations, Class 15-010, Type HDE, Style 1072965.

(These are 3-button stations, marked "Forward-Reverse-Stop.")

Size No.	MAXIMUM HORSEPOWER* 110 Volts	MAXIMUM HORSEPOWER* 220 Volts	MAXIMUM HORSEPOWER* 440-600 Volts	Nomenclature Class	PRICE Starter, Heaters, Water-Tight Push Button	Omit P.B.	Approximate Dimensions in Inches Width	Approximate Dimensions in Inches Height	Approximate Dimensions in Inches Depth	Heater Table No. ■
0	1½	2	2	11-210-W0	$ 63.00	$16.00	15½	11⅝	6	2
1	3	5	7½	11-210-W1	74.00	16.00	15½	11⅝	6	2
2	7½	15	25	11-210-W2	121.00	16.00	16	28	6¾	5
3	15	30	50	11-210-W3	177.00	16.00	19	35	9⅝	5
4	25	50	100	11-210-W4	378.00	16.00	19	35	9⅝	5

*For plug-stop or frequent jogging service, see table covering same, above.

For Hazardous Locations—NEMA Type VII

3-Phase—3-Pole—With Overload Protection—60 and 50 Cycles

FOR CLASS I GROUP D LOCATIONS
†NEMA TYPE VII

Size No.	MAXIMUM HORSEPOWER 110 Volts	MAXIMUM HORSEPOWER 220 Volts	MAXIMUM HORSEPOWER 440-600 Volts	Nomenclature Class	PRICE Starter, Heaters, P.B.	Omit P.B.	Heater Table No. ■
0	1½	2	2	11-210-U0	$109.00	$21.00	2
1	3	5	7½	11-210-U1	114.00	21.00	2
2	7½	15	25	11-210-U2	185.00	21.00	5

†Designed to conform to our interpretation of UL standards for apparatus for use in Hazardous Locations (Art. 500, NEC) but have not been submitted to the Laboratories for test.

Heaters must be ordered separately, two per starter. Omission or addition price of heaters, per pair: **$1.20.**

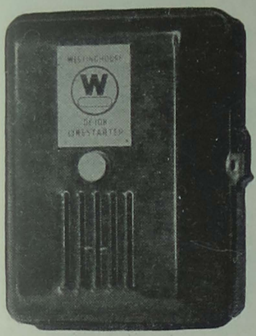
■See Heater Tables on Page 348.

WESTINGHOUSE D-C. MAGNETIC STARTERS

CLASS 8502 NON-REVERSING LINESTARTER—CLASS 8503 REVERSING LINESTARTER

For Compound-Wound Direct-Current Motors

1½ and 2 Hp.—115 and 230 Volts, Across-the-Line Starting



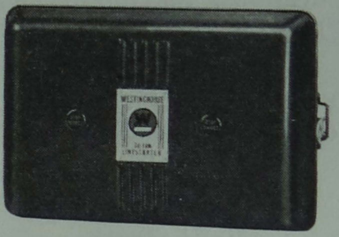
Class 8502-S1 Linestarter

These Linestarters are used to start compound-wound direct-current motors directly across the line in those applications where the high starting torque obtained by this method of starting will not be injurious to the driven machine. Extensively used with motors driving pumps, fans, machine tools, etc.

"De-ion" contactor (4-pole) with double-break silver contacts assures reliable operation. Combination automatic or hand reset thermal overload relay permits remote mounting and greater output per machine. Reliable motor protection is assured by interchangeable heaters and accurate calibration of the overload relay. Compact steel cabinet with convenient conduit knockouts simplifies making connections from any side.

Unattended applications such as pump, fan, etc., usually employ hand reset. For applications where the overload conditions can be easily removed by the operator, such as machine tool, etc., the hand reset lever may be removed and the automatic feature used.

When ordering specify: 1—Catalog number, 2—Class number, 3—Horsepower and Voltage, 4—Whether for 2-wire or 3-wire control, 5—Enter separate item for heater and 6—Enter separate item for the push button required: For Class 8502 non-reversing Linestarters, Type SD or Type EP-6, push buttons as listed below. For Class 8503 reversing Linestarters, "forward," "reverse" and "stop" push button, Type SD, Style 1089738.



Class 8503-S1 Reversing Linestarter

Class 8503-S1 reversing Linestarters consist of two non-reversing units mounted side by side and mechanically interlocked. These starters open both sides of the shunt field circuit in the off position, and are provided with continuous duty operating coils.

115 and 230 Volts—D-C.

		REVERSING CLASS 8503-S1			
Volts	Maximum Hp.	Catalog Number Starter Only	Approx. Shp. Wt. Lbs.	**PRICE Starter, Heater, Push-Button**	**Heater Table No. ■**
115	1½	**1018743**	25	**$47.00**	2
230	2	**1018744**	25	**47.00**	2

Push Button

Catalog Number **1089738**

Omission Price **$6.00**

Overload relay may be omitted at **$3.00.**

Omission price of heater **$0.60.** Separate selling price **$1.20** per pair.

■See Heater Tables on Page 348.

Class 8502—Non-Reversing—115 and 230 Volts—D-C.

		STANDARD ENCLOSURE NEMA TYPE I CLASS 8502-S1				**DUST-TIGHT AND WATER-TIGHT NEMA 3, 4, 5 CLASS 8502-W1**		
				CATALOG NUMBER Starter Only				
Volts	Maximum Hp.	**PRICE Starter, Heater, Push-Button**	Approx. Shp. Wt. Lbs.	3-Wire Control	2-Wire Control	**PRICE Starter, Heater, Push-Button**	Approx. Shp. Wt. Lbs.	**Heater Table No. ■**
115	1½	**$22.00**	15	**1018739**	**1018781**	**$41.00**	35	3
230	2	**22.00**	15	**1018740**	**1018782**	**41.00**	35	3

Push Buttons

Catalog Number	**1072795**	**1089732**	**1089742**	(3-Wire)	10
Omission Price	**$2.00**	**$2.00**	**$7.00**		----

Overload relay may be omitted at **$3.00.**

Omission price of Heater **$0.60.** Separate selling price **$1.20** per pair.

■See Heater Tables on Page 348.

APPLICATION OF WESTINGHOUSE THERMAL OVERLOAD RELAY HEATERS

Each heater is identified by a code marking. The Heater Application Tables indicate the range of full load motor current to which a given heater may be applied. This range is so selected that the current to produce ultimate tripping of relay will be between 115% and 125% of rated motor current.

Select heaters from the following tables for all average applications. For totally-enclosed, splash-proof, drip-proof and all other continuous-rated 50° or 55° motors, a heater approximately one size smaller should be used (but always above the full load current of the motor). For application of high inertia where it takes more than eight or ten seconds for the motor to come up to speed, and for applications where the motor is started and stopped very frequently, refer to the Company.

The current rating of the relay is the current required to trip it when the room temperature surrounding the starter is 40°C. Standard motors are rated at this same temperature.

FOR LINESTARTERS WITH TYPE MW RELAY (TYPE Dn SIZES 0 AND 1)

	Combination and Reversing **LINESTARTERS** Classes 11-204, 11-206-S0, S1, W1. Classes 11-210-S0, S1, W0, W1 **TABLE 2**		Enclosed **LINESTARTERS** Classes 11-200-S0, S01, S1, S11, W1, U11 **TABLE 3**	
Full Load Current of Motor	Heater Style	Code* Marking	Heater Style	Code* Marking
0.55 to 0.62	------------	------------	966465	AA0.71
0.63 to 0.71	966465	AA0.71	966466	AB0.82
0.72 to 0.79	966466	AB0.82	966467	AC0.93
0.80 to 0.89	966467	AC0.93	966468	AD1.00
0.90 to 0.99	966468	AD1.00	966469	AE1.1
1.00 to 1.04	966469	AE1.1	966470	AF1.2
1.05 to 1.18	966470	AF1.2	966471	AG1.4
1.19 to 1.32	966471	AG1.4	966472	AH1.5
1.33 to 1.49	966472	AH1.5	966473	AI1.7
1.50 to 1.71	966473	AI1.7	966474	AK1.9
1.72 to 1.89	966474	AK1.9	966475	AL2.1
1.90 to 2.09	966475	AL2.1	966476	AM2.5
2.10 to 2.35	966476	AM2.5	966477	AN2.7
2.36 to 2.65	966477	AN2.7	966478	AO3.0
2.66 to 2.98	966478	AO3.0	966479	AP3.4
2.99 to 3.35	966479	AP3.4	966480	AR3.8
3.36 to 3.75	966480	AR3.8	966481	AS4.3
3.76 to 4.21	966481	AS4.3	966482	AT4.8
4.22 to 4.71	966482	AT4.8	966483	AU5.4
4.72 to 5.33	966483	AU5.4	966484	AW6.1
5.34 to 5.94	966484	AW6.1	966485	AX6.8
5.95 to 6.63	966485	AX6.8	966486	AY7.7
6.64 to 7.52	966486	AY7.7	966487	AZ8.5
7.53 to 8.51	966487	AZ8.5	966488	BA9.6
8.52 to 9.31	966488	BA9.6	966489	BB11.0
9.32 to 10.5	966489	BB11.0	966490	BC12.0
10.6 to 11.5	966490	BC12.0	966491	BD13.0
11.6 to 12.4	966491	BD13.0	966492	BE14.0
12.5 to 13.4	966492	BE14.0	966493	BF16.0
13.5 to 14.9	966493	BF16.0	966494	BG18.0
15.0 to 17.5	966494	BG18.0	966495	BH19.0
17.6 to 18.2	966495	BH19.0	966496	BI21.0
18.3 to 19.0	966496	BI21.0	966497	BK23.0
19.1 to 20.5	966497	BK23.0	966498	BL25.0
20.6 to 22.6	966498	BL25.0	966499	BM27.0
22.7 to 24.9	966499	BM27.0	1040588	BN29.0
25.0 to 28.4	1040588	BN29.0	974084	BO31.0
28.5 to 32.2	974084	BO31.0	1040589	BR36.0
32.3 to 35.0	1040589	BR36.0	1040590	BS40.0

*The code marking represents the approximate trip rating for Table 3.

WITH TYPE TA OR TA-2 OVERLOAD RELAYS

Classes: 11-200-F3, F-51, F-52; 11-210-F
With Transformers*

HEATERS — TABLE 6-C

Full Load Current of Motor	Ampere Rating of Comb.	Style of Heater	Full Load Current of Motor	Ampere Rating of Comb.	Style of Heater
70.– 90.	100.	511343	159.–200.	210.	502915
91.–109.	120.	474419	200.–225.	250.	474425
109.–127.	140.	474420	225.–252.	280.	474426
127.–145.	160.	484421	252.–300.	310.	474427
145.–159.	175.	484422	--------------	-----	----------

*The current transformers are included in the Style No.

FOR LINESTARTERS WITH TYPE MP RELAY (TYPE Dn SIZES 2, 3, 4)

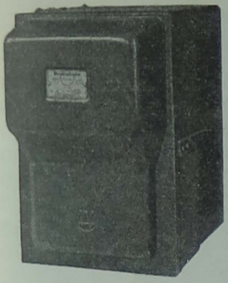
	Enclosed **LINESTARTERS** Classes 11-200, 11-206, 11-210-S2, S3, S4, W2, W3, W4, U21, U31 **TABLE 5**	
Full Load Current of Motor	Heater Style	Code Marking
.495 to .539	1033275	8S29- .62
.540 to .602	1033276	8S28- .68
.603 to .680	1033277	8S27- .77
.681 to .765	1033278	8S26- .87
.766 to .860	1033279	8S25- .97
.861 to .972	1033280	8S24- 1.1
.973 to 1.07	1033281	8S23- 1.2
1.08 to 1.24	1033282	8S22- 1.4
1.25 to 1.42	1033283	8S21- 1.6
1.43 to 1.55	1033284	8S20- 1.8
1.56 to 1.75	1033285	8S19- 2.0
1.76 to 1.91	1033287	8P23- 2.2
1.92 to 2.12	1033288	8P22- 2.4
2.13 to 2.37	1033289	8P21- 2.7
2.38 to 2.66	1033290	8P20- 3.0
2.67 to 2.99	1033291	8P19- 3.4
3.00 to 3.37	1033292	8P18- 3.8
3.38 to 3.79	1033293	8T18- 4.3
3.80 to 4.24	1033294	8T17- 4.8
4.25 to 4.79	1033295	8T16- 5.4
4.80 to 5.41	1033881	8T15- 6.1
5.42 to 6.12	1115700	8T14- 6.9
6.13 to 6.74	1115701	8T13- 7.8
6.75 to 7.35	1115702	8T12- 8.5
7.36 to 7.99	1115703	8T11- 9.2
8.00 to 8.75	1115704	8T10- 10.0
8.76 to 9.57	1115705	8T9- 11.0
9.58 to 10.2	1115706	8T8- 12.0
10.3 to 11.3	967183	6C4- 13.0
11.4 to 12.5	967184	6C5- 14.0
12.6 to 13.7	967185	6C6- 16.0
13.8 to 14.9	967186	6C7- 17.0
15.0 to 16.7	967187	6A4- 19.0
16.8 to 18.5	967188	5C4- 21.0
18.6 to 20.9	967189	5C5- 24.0
21.0 to 22.8	1040412	6A7- 26.0
22.9 to 24.9	967191	5C7- 29.0
25.0 to 28.4	967192	4C6- 32.0
28.5 to 30.8	967193	4C7- 36.0
30.9 to 33.2	1040413	3C3- 39.0
33.3 to 37.0	1040414	3C4- 42.0
37.1 to 40.6	1040415	3C5- 47.0
40.7 to 44.1	1040416	3C6- 51.0
44.2 to 48.1	967198	3C7- 55.0
48.2 to 53.3	1040418	2C5- 60.0
53.4 to 57.7	967200	2C6- 67.0
57.8 to 62.5	1040420	2C7- 72.0
62.6 to 68.5	1040421	3A7- 78.0
68.6 to 78.0	967203	2A5- 88.0
78.1 to 84.9	1040423	2A6-101.0
85.0 to 92.9	1040424	2A7-107.0
93.0 to 103.0	1040425	2M5-116.0
104.0 to 118.0	1040426	2M6-134.0
119.0 to 129.0	1040427	2M7-149.0
130.0 to 141.0	1040428	2W6-163.0
142.0 to 151.0	------------	--------------

WESTINGHOUSE D-C. MAGNETIC STARTERS AND CONTROLLERS

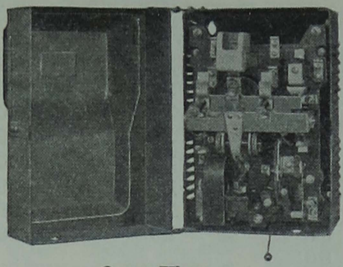
NON-REVERSING CLASS 8512 TIMESTARTERS

For Constant Speed D-C. Motors

½ to 5 H.P., 115 Volts—½ to 10 H.P., 230 Volts
Definite, Adjustable, Time-Limit Acceleration



Closed View



Open View

Class 8512 Timestarters comprise a complete line of remote-controlled, magnetic starters for constant speed direct current motors in sizes up to 10 hp., 230 volts. For machine tool and general purpose non-jogging applications where time required to accelerate motor to full speed does not exceed five seconds and the frequency of operation, not over one for every four minutes. They provide 3 points of definite time-limit acceleration.

Easy adjustment of a clock escapement mechanism permits changing of accelerating time accurately and definitely to suit requirements. Reliable motor protection is assured by interchangeable heaters and extremely accurate calibration of thermal overload relay. Combination automatic and hand reset overload relay permits remote mounting with minimum operator attention. Clean contact surfaces assured by sliding action between contacts. Rolling action between contacts prevents their sticking or "freezing." Compact steel cabinet permits mounting at most convenient location. Conduit knockouts simplify making connections.

Standard Equipment: Non-reversing, reduced voltage, non-jogging NEMA Type 2 (IC10-12). NEMA Classification No. 115 starting resistor provides 150% torque on first point and is designed for one 5-second start every 80 seconds; ventilated cabinet, small size, arranged for conduit wiring, may be locked closed.

Ordering Information

When ordering specify: 1 — Class Number, 2 — Catalog Number, 3 — Horsepower and Voltage, 4 — Enter separate item for push-button station.

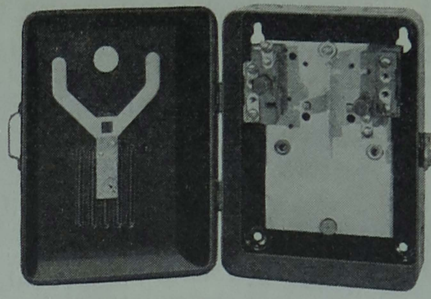
CLASS 8512-2B CONSTANT SPEED WITH OVERLOAD PROTECTION WITHOUT DYNAMIC BRAKING

Hp.	Cat. No.	Approx. Shpg. Wt. Lbs.	Price With Push Buttons
	115 Volts		
½	**832714**	20	**$48.00**
1	**832715**	20	**48.00**
1½	**832716**	20	**48.00**
2	**832717**	20	**48.00**
3	**832718**	20	**48.00**
5	**832719**	20	**73.00**
	230 Volts		
½	**832720**	20	**48.00**
1	**832721**	20	**48.00**
1½	**832722**	20	**48.00**
2	**832723**	20	**48.00**
3	**832724**	20	**48.00**
5	**832725**	20	**54.00**
7½	**832726**	20	**54.00**
10	**832727**	20	**73.00**

Push button Cat. No. **1072795,** addition or omission price, **$2.00.** Overload relay may be omitted at **$5.00.**

WESTINGHOUSE RELAY PANELS

ENCLOSED OVERLOAD — A-C. or D-C.



Type MW Two-Pole Relay Panel

These overload relay panels may be used to protect any motor which is provided with a switch having a magnetic holding coil or low voltage release device which may be de-energized to stop the motor. The control circuit contacts will handle coils with magnetizing currents not exceeding those shown in the table below.

Types MW and MP overload relays (those used in Type Dn "De-ion" Linestarters) are mounted in standard sheet steel enclosures. The relays are hand reset by a reset button provided on the outside of each cabinet.

The MW relays may be made automatic reset by removing the reset rods. The two-pole Type MP relays include terminals for the third line.

Approximate Dimensions: — Relay Type No. MW: Width, 6⅝ inches; Height, 8⅞ inches; Depth, 4⅝ inches. MP-22 and 23: Width, 9 inches; Height, 11 inches; Depth, 5⅞ inches. MP-32, 33, 42 and 43: Width, 12⅞ inches; Height, 12⅛ inches; Depth, 7⅛ inches.

When ordering specify:

1—Catalog Number, Class Number, Type and number of poles of relay, and motor full load current.

2—Enter separate item for heaters, omission or separate selling price, **$1.20** per pair.

110 to 600 Volts

Cat. No.	No. of Poles	Approx. Current Range	Relay Type No.	PRICE With Heaters	Heater Table No. ■
1032140	1	.5-25	MW	**$7.00**	1*
1032139	2	.5-25	MW	**9.00**	2
1032138	3	.5-25	MW	**12.00**	2
1018678	2	1.0-50	MP-22	**12.00**	5
-------------	3	1.0-50	MP-23	**16.00**	5
1018679	2	11.0-100	MP-32	**15.00**	5
-------------	3	11.0-100	MP-33	**18.00**	5
1018680	2	50.0-150	MP-42	**15.00**	5
-------------	3	50.0-150	MP-43	**18.00**	5

Cat. No.	No. of Poles	Contact Rating			Approx. Shpg. Wt. Lbs.
		A-C. 110 to 600 V.	D-C.		
			230 V.	600 V.	
1032140	1	1.0	.2	.08	8
1032139	2	1.0	.2	.08	8
1032138	3	1.0	.2	.08	9
1018678	2	6.0	.4	.1	30
-------------	3	6.0	.4	.1	30
1018679	2	6.0	.4	.1	35
-------------	3	6.0	.4	.1	35
1018680	2	6.0	.4	.1	35
-------------	3	6.0	.4	.1	35

*Use next higher rating of table 2 to obtain corresponding catalog number for table 1.

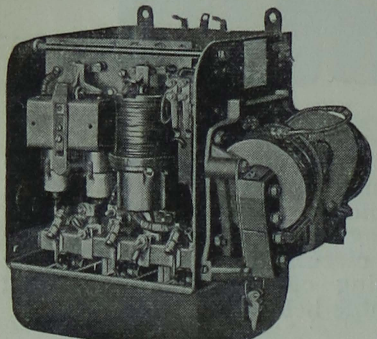
■See Heater Tables on Page 348.

WESTINGHOUSE A-C. MAGNETIC STARTERS

NON-REVERSING SERVICE CLASS 11-500 AUTOTRANSFORMER TYPE

Reduced Voltage Starting — Time Limit Acceleration — For Polyphase Squirrel-Cage Induction Motors

5 to 100 Hp. — 50 and 60 Cycles
220, 440 and 550 Volts


Class 11-500 Starter With Cover Removed

For all classes of service where advantages of remote control, safety and small size are desired. Simple operation of push button or master switch starts motor automatically. Standard equipment includes push button control; self-contained autotransformer; automatic time limit acceleration; inverse time limit overload protection with latch and electrical reset; low voltage protection with 3-wire control; rolling contacts, powerful starting and operating magnets; 1-piece oil tank—oil not supplied for ratings on frames 2 and 3 unless requested; dust-proof construction; junction box to facilitate wiring. Starting on reduced voltage tap of autotransformers: 65% and 80% taps provided on Sizes 2 and 3; 50%, 65% and 80% on Size 4. Opens all wires to a 3-phase (3-wire) or to a 2-phase (4-wire) motor. Low voltage release with 2-wire control.

Asbestos lumber arc barriers between contacts on size No. 2 and 3, oil on size No. 4

The entire operating mechanism is enclosed within a sheet steel case. Covers give access to relays, and main contacts can be easily removed without tools. Magnet cover removed vertically. Provided with ventilation louvres. Oil tank may be quickly dropped by releasing ring latches.

Autotransformer is built of non-aging silicon steel laminations with moisture-proof transformer coils. Timing on the accelerating relay may be easily adjusted to suit the application. Solid copper rolling contacts used in both starting and running positions. The dual operating mechanism consists of a common moving armature that is attached to the shaft which carries the main contacts. This armature is attracted by either the starting or the running magnet, but not by both at the same time. It is of the floating, self-aligning type and provided with shading coils to reduce magnetic hum. The two-coil overload relay of the inverse-time-limit type provides effective protection to motor. Electrical-reset attachment provides reset of this relay from a push button, but can be easily removed if automatic reset is desired. By the use of the proper master switch, either low-voltage release or low-voltage protection can be obtained. The momentary contact type of push button is used to provide low-voltage protection where unsupervised starting is dangerous, such as for driving machine tools, woodworking lathes, etc. Low-voltage release, which allows motor to start again immediately after a voltage failure, is used for motors driving pumps, compressors, etc., and makes use of the maintained contact type of master switch. This may be a snap switch, push button, pressure gauge, float switch, etc.

WESTINGHOUSE A-C. MAGNETIC STARTERS

CLASS 11-500 AUTOTRANSFORMER TYPE

For Squirrel-Cage Induction Motors

2 and 3-Phase, 50 and 60 Cycles

	220 Volts			440-550 Volts		
Hp.	Size No.	Shpg. Wt.Lbs.	Price Each†	Size No.	Shpg. Wt.Lbs.	Price Each†
5–7½	2	215	**$171.00**	2	215	**$171.00**
10	2	215	**171.00**	2	215	**171.00**
15	2	215	**171.00**	2	215	**171.00**
20	2	220	**200.00**	2	220	**187.00**
25	2	220	**200.00**	2	220	**187.00**
30	2*	220*	**207.00**	2*	220*	**207.00**
40	3	290	**423.00**	3	290	**224.00**
50	3	290	**423.00**	3	290	**224.00**
60	--	-----	---------	4	420	**429.00**
75	--	-----	---------	4	420	**429.00**
100	--	-----	---------	4	420	**429.00**

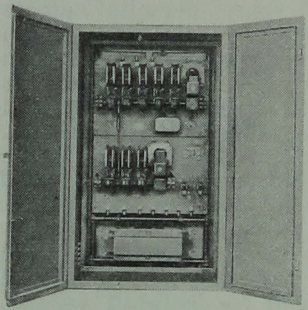
*The 50 cycle 30 hp. starter is size No. 3. Note: For higher ratings, refer to Class 11-600.

†Omission price of "start" and "stop" push button station to 30 hp. 220V. and 50 hp. 440-550V. **$2.00.** For larger ratings, **$6.00.**

CLASS 11-600 AUTOTRANSFORMER TYPE NON-REVERSING SERVICE

For Squirrel-Cage Induction Motors

2 and 3-Phase — 60 Cycles
60 to 350 H.P. — Open Panel


Class 11-600 Starter

For reduced voltage starting of polyphase squirrel-cage induction motors driving pumps, blowers, machine tools, mill machinery, and in all classes of service where advantages of remote control are desired. Also used where ratings higher than those shown under class 11-500 are required.

Frequency of operation should not exceed one start every four minutes for an hour, and motor should accelerate to full speed under 15 seconds.

Standard Equipment: Push button control; reduced voltage starting from dry-type autotransformer; definite time limit acceleration; thermal overload protection with hand reset; opens 3 wires to motor; low-voltage protection for three-wire control; low-voltage release for two-wire control.

Enclosed with auto-transformer mounted in cabinet.

60 or 50 Cycles — 3 or 2 Phase — 3-Wire

220 Volts				440/550 Volts			
Hp.	Panel No.	Approx. Shpg.Wt. Lbs.	Price Each*	Hp.	Panel No.	Approx. Shpg.Wt. Lbs.	Price Each*
60	606	750	**$649.00**	125	606	750	**$678.00**
75	606	750	**649.00**	150	606	750	**678.00**
100	606	1000	**713.00**	200	606	1000	**747.00**
125	607	1500	**1199.00**	250	607	1500	**1273.00**
150	607	1500	**1263.00**	300	607	1500	**1364.00**
200	607	1500	**1319.00**	350	607	1600	**1398.00**

*Price includes starter complete with autotransformer and Class 15-010 push button station.

Omission Prices: ....Push Button, **$6.00**

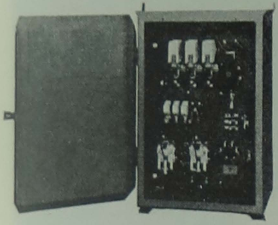
WESTINGHOUSE A-C. MAGNETIC STARTERS

NON-REVERSING SERVICE

CLASS 13-100 MAGNETIC STARTERS

For Wound-Rotor Induction Motors

5 to 1000 H.P.—2 and 3 Phase
25, 50 and 60 Cycles—220, 440, 550 and 2200 Volts



Class 13-100 Starter With Enclosing Cabinet

For starting and accelerating wound-rotor polyphase induction motors in practically all applications where the advantages of remote control and automatic operation are desirable. They do not provide any speed control. Extensively used in connection with pumps, positive pressure blowers, air compressors, long line shafts and loads having heavy inertia where the severe starting conditions encountered make automatic starting a very desirable feature. Acceleration, consistent with good operating practice, is assured by the use of time limit accelerating relays.

Simplicity of starting, together with convenience of remote control, makes possible the starting of the largest motors by the most inexperienced operator. May be operated by attendant from push button, snap switch or master switch, or automatically from pressure regulator, float switch, or some such similar automatic device.

These starters consist of a 3-pole magnetic primary contactor, a thermal overload relay, one to five accelerating contactors for cutting out resistance in the motor secondary, and auxiliary relays for the Rectox rectifier circuit. Acceleration is controlled by Type AT timetactors, which are D-C. inductive time limit relays operated on direct-current supplied from a small Rectox rectifier mounted on the back of the panel. The timing is entirely magnetic (no dash pots or mechanical delay attachments) and is adjustable over a wide range by means of an adjusting resistor mounted on the front of the panel.

For ratings up to approximately 300 horsepower, the functions of accelerating relay and contactor are combined in the special two-pole Type AT timetactors. For higher ratings where more capacity is required, single-pole AT timetactors serve as accelerating relays, and two-pole or three-pole A-C. contactors handle the motor current.

The line contactor on 2200-volt starters is oil-immersed, and is mounted on the back of the panel. The standard control circuit voltage is 220 volts, supplied by a separate distribution transformer.

Resistors are NEMA No. 135, designed to produce approximately 150% full load torque at start, and to accelerate the motor in 10 seconds once every 80 seconds. Resistors are mounted on the panel and wired for ratings up to 75 horsepower inclusive. They are separately mounted for higher ratings, and must be wired by the purchaser. Type M edge wound resistors are used for the smaller ratings where the resistor is mounted on the panel. Standard length frames of cast iron grids are supplied for separate mounting for higher ratings.

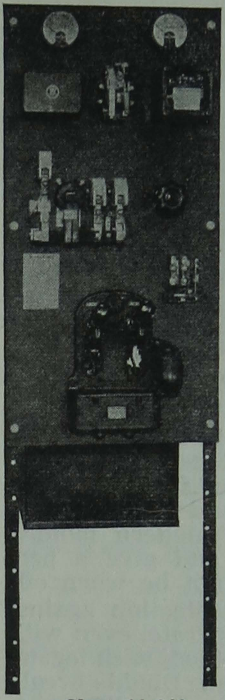
When ordering specify: Class 13-100, whether open or enclosed, and give complete motor rating including open circuit secondary volts and full load secondary amperes or Westinghouse catalog number or order number.

WESTINGHOUSE A-C. MAGNETIC STARTERS

CLASS 14-040 SEMI-MAGNETIC REDUCED VOLTAGE STARTER

For Synchronous Motors

20 to 2500 Hp.—3-Phase—25 to 60 Cycles—220, 440/550, 2000/2500, 2501/4500 and 4501/6600 Volts



Class 14-040 Typical Low-Voltage Starter

For automatic field control and protection, but requires manual operation of the line breakers for normal starting and stopping of the motor. Starters of this type are used for limiting motor inrush on starting, provided satisfactory load starting torque can be secured at the reduced starting voltage. For push button or full automatic operation, use Class 14-410.

Standard starters are not designed to provide short-circuit protection. If short-circuit interrupting capacity or high momentary current carrying capacity is desired, ask regarding necessary modification of standard design. Class 14-040 starters include equipment mounted (unless otherwise specified) on an ebony asbestos panel having angle-iron supports 76 inches in height. Complete details on equipment included in a standard starter, data and prices, furnished on request.

CLASS 14-240 SEMI-MAGNETIC FULL-VOLTAGE STARTERS

For Synchronous Motors

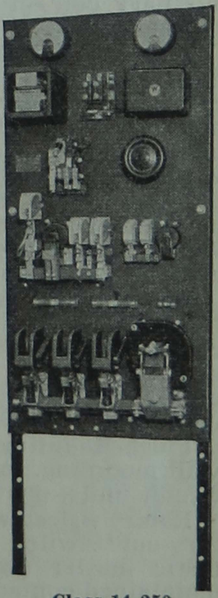
20 to 2500 Hp.—3-Phase or 2-Phase, 3-Wire—25 to 60 Cycles 220 to 2200 Volts

For automatic field control and protection, but require manual operation of line breaker for normal starting and stopping of motor. Use when location and frequency of starting do not make manual starting inconvenient or impractical.

CLASS 14-250 MAGNETIC FULL-VOLTAGE STARTERS

For Synchronous Motors

20 to 2500 Hp.—3-Phase or 2-Phase, 3-Wire—25 to 60 Cycles—220, 440/550, 2000/2500, 2501/4500, 4501/6600 Volts



Class 14-250 Typical Low-Voltage Starter

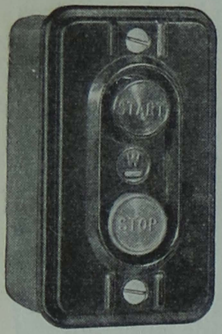
For starting low and medium speed synchronous motors by connecting directly to the line. All control functions automatically performed in correct sequence after operation of push button station, or automatically if controlled from pressure regulators, float or similar master switches. Protection against over-load, single-phase operation, and loss of field excitation provided by thermal overload relay. Low voltage protection or release provided, depending upon master switch used. Field contactor controlled by adjustable definite time relay. Set for correct accelerating period, determined by motor and load conditions, with assurance motor will synchronize.

WESTINGHOUSE AUTOMATIC CONTROL ACCESSORIES

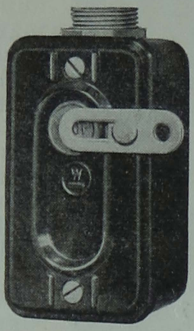
PUSH BUTTON STATIONS

Type SD Standard Duty — For A-C. and D-C. Pilot Circuits

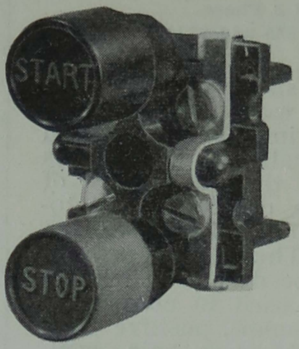
Surface and Flush Mounting — Dust and Water-Tight — 110 to 600 Volts — A-C. and D-C.



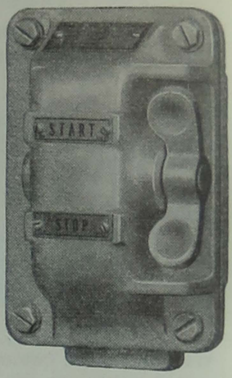
Standard 3-Wire Station



Type SD Station with Safety Latch



Unit for Built-In Applications



Dust-Tight and Water-Tight Station

Type SD Standard Duty Push Buttons are used to control various functions of general-purpose magnetic controllers. They offer safe and convenient operation, are compact and easy to wire. Compact drawn steel cases and modern molded covers eliminate sharp corners and give a permanent attractive finish that cannot be worn off.

Large buttons, shrouded for protection against accidental operation are easy to operate, even with gloved hands. Buttons are hot-molded, with legend clearly molded into face of button. Double-break, silver-plated copper contacts assure long-life operation. Terminals are clearly numbered to correspond to standard Linestarter markings, making installation simple. Molded insulation contributes to compactness, yet leaves ample wiring space on all sides of each button unit. Knockouts in top and bottom. "Stop" buttons are supplied in red, all other buttons in black.

Standard Start-Stop Station — A single-circuit, three-wire, momentary-contact, spring-return control station for use with magnetic starters in general purpose starter applications. Both buttons are mounted on a single base.

Single-Button Station — One double-circuit, momentary-contact, spring-return button. For use as auxiliary control in machine tool operations and similar uses.

Two-Button Station — Two double-circuit, momentary-contact, spring-return units. For use with reversing starters. Provides control of two motions, such as forward and reverse, in and out, up and down, etc. Driven device operates only while button is held down.

Three-Button Station — Three double-circuit, momentary-contact, spring-return units. For forward, reverse and stop operations. The standard control station for reversing applications.

Water-Tight Station — Dust and water-tight stations consist of double-circuit units mounted in a cast-iron, gasket-sealed case. Unit is lever-operated. Shafts and hardware of corrosion-resisting copper alloy assure dependable operation. Case mounts directly on conduit.

Flush-Mounting Push Button Station—For flush wall mounting. A two-button station with double-circuit units, provided with brass flush plate.

Rotary Selector Switch—For use as control and "try-out" switch on circuits controlled by automatic master switch. Also can be used for a maintained-contact control station. Center position of switch is "off." Left and right positions close and maintain independent circuits.

Push Button Station with Safety-Latch — Latch enables circuit either to be held or locked open. Provides protection for operator against closing of circuit by another operator or from another control point.

Units for Built-In Applications—Type SD units provide the machine tool builder with modern, easy-to-operate control stations which lend themselves readily to designing into any type of equipment. They mount directly against back plate without additional insulation. Types of units available are: Start-Stop, Double-Circuit and Rotary Selector Switch.

Push Button Function — Legend Marking (From Top to Bottom)

Cat. No.		Price Each
	Single-Button Stations (Two-Circuit Units)	
1089716	Start	$2.00
1089717	Stop	2.00
1089727	Stop (with Safety-Latch)	3.00
	Two-Button Stations, 3-Wire* (Single-Circuit Unit)	
1072795	Start—Stop	2.00
1040565	Start—Stop (with Safety-Latch)	3.00
	Two-Button Stations (Two-Circuit Units)	
1089733	Start—Stop	2.50
1089734	Start—Stop (with Safety-Latch)	3.50
1089737	Start—Stop (Flush Mounting)	4.00
1089735	Forward—Reverse	2.50
1089736	Raise—Lower	2.50
1014537	Open—Close	2.50
	Three-Button Stations (Two-Circuit Units)	
1089738	Forward—Reverse—Stop	6.00
1014538	Raise—Lower—Stop	6.00
1089739	Open—Close—Stop	6.00
	Selector Switch Stations (Maintained Contact)	
1089730	Stop, Start	2.50
1089731	Off, On	2.50
1089732	Hand, Off, Auto.	2.00
1089740	Inch, Run—Start—Stop	7.00
	Dust-Tight, Water-Tight Stations (Two-Circuit Units)	
1018683	Start	7.00
1018684	Stop	7.00
1089742	Start—Stop	7.00

*A jumper may be easily removed to permit use in multiple as four-wire stations.

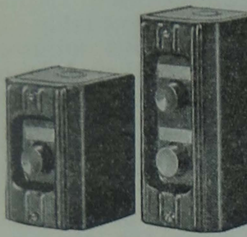
Note: These stations have the push button function molded in the top of the button. Special markings may be engraved in the buttons, at a charge of **$0.50** per button to be engraved.

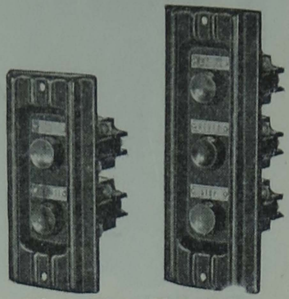
WESTINGHOUSE AUTOMATIC CONTROL ACCESSORIES

PUSH BUTTON STATIONS

Type HD Heavy-Duty — For A-C. and D-C. Pilot Circuits

Surface-Mounted Standard Steel Enclosures — Separate Units — Flush-Plate-Mounted


Surface-Mounted


Flush-Plate-Mounted

Heavy-duty stations of one to seven units are available. There are eight different units which may be grouped together in any combinations desired to control the operations of magnetic controllers.

All units have the same mounting dimensions, and may be located in any position in a station. Each unit is entirely self-contained, and requires no additional insulation to mount in box or on flush plate or panel.

Two forms of station assembly are available: (1) the standard surface-mounting enclosure, and (2) flush-plate-mounted with or without pullbox.

SURFACE-MOUNTING STANDARD STEEL ENCLOSURES

Stations with Push-Button Units Only

110 to 600 Volts—A-C. and D-C.

Cat. No.	P.B. Plate Marking (From Top to Bottom)	Safety Latch on Button	Approx. Shp. Wt. Lbs.	Price Each
	Single-Button Stations			
1033319	Start	....	4	**$4.00**
1033320	Reset	....	4	**4.00**
1033321	Stop	....	4	**4.00**
1033323	On, Stop, Safe	Stop	4	**5.00**
	Two-Button Stations			
1033337	Start—Stop	....	5	**6.00**
1033343	Start—On, Stop, Safe,	Stop	5	**7.00**
1033341	Forward—Reverse	....	5	**6.00**
1033351	Start, Stop (Maintained Contact, L.V.R.)	....	5	**6.00**
	Three-Button Stations			
1033357	Forward—Reverse —Stop	....	6	**8.00**
1033580	Forward—Reverse —On, Stop, Inch	Stop	6	**9.00**
1033365	Reset—Start, Stop (Maintained Contact, L.V.R.)	....	6	**8.00**

Combination Stations with Rotary Selector Switch Units

Single-Unit Stations—(One Selector)

Cat. No.	P.B. Plate Marking (From Top to Bottom)	Safety Latch on Button	Approx. Shp. Wt. Lbs.	Price Each
1033328	Hand, Off, Auto. (3-Pos. S.P.D.T.)		4	**$5.00**

Combination Stations with Indicating Lights

110 to 600 Volts—A-C. and D-C.

Three-Unit Stations—(One Light, Two Push Buttons or Three Lights)

Cat. No.	P.B. Plate Marking (From Top to Bottom)	Safety Latch on Button	Approx. Shp. Wt. Lbs.	Price Each
1033370	250 V. Red Light —Start—Stop	....	7	**10.00**
1040092	440 V. Red Light— —Stop	....	9	**13.00**

PANEL-MOUNTING NARROW FLUSH-PLATES

Stations with Push-Button Units Only

110 to 600 Volts—A-C. and D-C.

Cat. No.	P.B. Plate Marking (From top to Bottom)	Approx. Shp. Wt. Lbs.	Price Each	Addition for Outlet Box or Cover Cat. No.	Price Each
	Single-Button Stations				
1033408	Start	3	**$4.00**	**1106205**	**$2.00**
1033409	Reset	3	**4.00**	**1106205**	**2.00**
1033410	Stop	3	**4.00**	**1106205**	**2.00**
	Two-Button Stations				
1033418	Start-Stop	4	**$6.00**	**1106206**	**$2.00**
1033426	Start—Stop (Maintained Contact, L.V.R.)	4	**6.00**	**1106206**	**2.00**
	Three-Button Stations				
1033431	Forward-Reverse—Stop	5	**$8.00**	**1106207**	**$3.00**

Dust-Tight and Water-Tight Cast-Iron Enclosure

Cat. No.	Legend Plate Marking (From Top to Bottom)	Approx. Shp. Wt. Lbs.	Tapped for Conduit	Price Each
	Single-Button Stations			
1033990	Start—Stop	10	¾	**$11.00**
	Two-Button Stations			
1033993	Start—Stop	10	¾	**$12.00**
1033999	Start—Stop (Maintained Contact, L.V.R.)	10	¾	**12.00**
	Three-Button Stations			
1033995	Forward — Reverse—Stop	17	1	**16.00**
	Selector Switch Stations			
1039618	Hand—Off—Automatic (3-Pos. S.P.D.T.)	9½	¾	**$12.00**

Dimensions: All above; Length 6⅞", Width 3¾", Depth 4¾", except the Three-Button Stations which are 11½" long.

OIL-IMMERSED—EXPLOSION-PROTECTING CORROSION-RESISTING

For Hazardous Locations

Class I, Group D—Class II, Group G—U.L. Tested and Listed

Cat. No.	Legend Plate Marking (From Left to Right)	Approx. Shp. Wt. Lbs.	Tapped for Conduit	PRICE With Oil†
	Single-Button Stations			
1089865	Start	15	¾	**$9.00**
1089866	Stop	15	¾	**9.00**
	Two-Button Stations			
1072960	Start—Stop	15	¾	**$11.00**
1072961	Start-Stop (Maintained Contact, L.V.R.)	15	¾	**11.00**
	Three-Button Stations			
1072965	Forward—Reverse —Stop	25	1	**$21.00**
	Selector Switch Stations			
1072962	Hand—Off—Automatic (3-Pos. S.P.D.T.)	15	¾	**$14.00**

†Oil not required, but no deduction for omission.

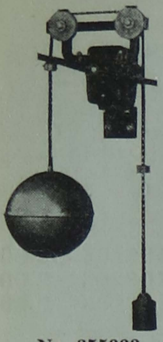
Dimensions: All above: Width 7", Height 5½", Depth 5⅞", except the Three-Button Stations which are 11" wide.

Data and prices of stations with other combinations of units or legend plates on request.

WESTINGHOUSE AUTOMATIC CONTROL ACCESSORIES

CLASS 15-040 FLOAT SWITCHES

For A-C. and D-C. Pilot Circuits Only



No. 855883

These float switches are used to operate magnetic starters controlling motor driven pumps. The rod-operated switches are usually used where the switch may be mounted close to the liquid level and where small variations in level are required. The chain-operated switch may be used for any desired variation in level above 5 inches, by providing the proper amount of chain. Standard floats should not be used in corrosive fluids, or under pressure, or where temperature exceeds 100° F for cylindrical floats or 300° F for spherical floats.

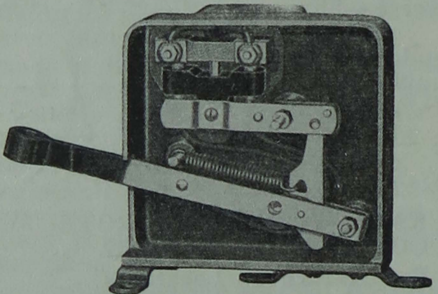
Standard Features

1—Single pole, for pilot circuits.
2—Cast-iron weather-proof case.
3—Quick make-and-break switch mechanism.
4—Interchangeable for tank or sump operation.
5—All parts treated to resist corrosion.

Cat. No.	Method of Operation	Type	Oper. Range Inches Min.	Oper. Range Inches Max.	Shpg. Wt.	Price Each
855883	Chain	15-040-C	5	†120	30	**$29.00**
855881‡¶	Rod	15-040-R	5	40	25	**29.00**
869963‡	Rod	15-040-R	5	40	25	**29.00**
855876§	....	15-040-S	..	....	15	**17.00**

†Additional chain, **$0.15** foot, for greater range.
‡5-foot rod included in price. Additional length **$0.15** per foot.
§Switch unit only.
*8-inch round copper float.
¶8-inch cylindrical copper float.

ROD-OPERATED INDOOR SWITCHES



Type RD Model FD Double-Pole Float Switch

These float switches are for indoor operation where a weather-proof and rugged case construction is not required. Type F is for pilot circuits and 250-volt single-phase motor control. Type RD, heavy-duty double-pole, is for 600 volts and motor starting.

All cases are rigid cast iron with feet for floor mounting, and with provision for conduit connections. All contacts are silver, double-break in the single-pole switch, and single-break in the double-pole switch. Contacts are positive acting, quick-make and quick-break.

110 to 550 Volts—60, 50, 25 Cycles

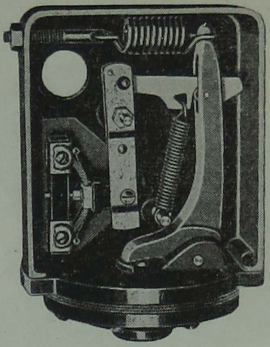
Type	No. of Poles	Pilot Circuit Max. Volts	RATINGS Horsepower Single Phase 110V.	Single Phase 220 V.	Poly-phase 110 V.	Poly-phase 220-550 V.	D-C. 115-230 V.	Shp. Wt. Lbs.	PRICE Switch, Float, Rod, 2-Stops
F	1	250	1	1	..	..	½	5	**$14.00**
RD Model FD	2	550	2	3	3	5	½	6	**15.00**

Omission or separate selling price of accessories (float, rod, stops), **$8.00.**

WESTINGHOUSE SWITCHES

TEMPERATURE—PRESSURE—VACUUM

Class 15-061—Type RD—For Pilot Circuits or for Motor Control

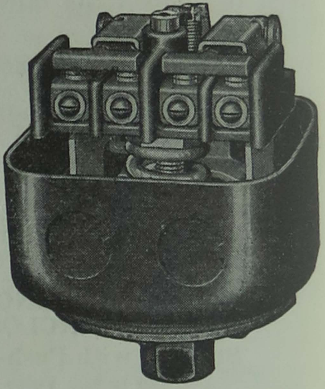


Type RD Pressure Regulator

A double-pole, single-break pressure switch to control water pumps, air compressors and similar equipment. Available in standard, easily adjusted ranges for either low or high pressure service as high as 200 pounds maximum. Special conduit box supplied if specified. May be equipped with two-way or three-way pressure release valve for air compressor service.

Differential is non-adjustable.

TYPE 100 HEAVY-DUTY PRESSURE SWITCH



Type 100—Cover Removed

A compact, double-pole, double-break pressure switch for air compressors, water pumps and similar equipment. Especially designed for heavy-duty service at high operating pressures, but also available for low-pressure service. Strong rubber and fabric diaphragm actuates an over-center toggle mechanism which provides positive snap-action of the heavy silver contacts on both make and break.

Both range and differential are adjustable.

Open Circuit at High Pressure or Vacuum
Close Circuit at Low Pressure or Vacuum

Type	Model	MAXIMUM HORSEPOWER D-C. 230 Volts	D-C. 550 Volts	A-C 1-Phase 110 Volts	A-C 1-Phase 220-550 Volts	A-C. 3-Phase 110 Volts	A-C. 3-Phase 220-550 Volts
RD	RD	½	..	2	3	3	5
100	......	2	2	2	5	3	5

Type	Max. Pilot Circuit Volts	No. of Poles	Approx. Shpg. Wt. Lbs.	Mounting	Standard Connection	Price Each
RD	550	2	7	Feet, Pipe	¼	**$8.00**
100	550	2	3¼	Pipe	⅜	**8.00**

Standard Pressure and Vacuum Specifications (Pounds per Square Inch)

Type RD—Model RD Min.	Max. Opening	Non-Adjustable Differential Min.	Non-Adjustable Differential Max.	Type 100 Min. Closing	Max. Opening	Adjustable Differential Min.	Adjustable Differential Max.
3	19	3	4	15	100	15	25
5	28	4	6	50	200	35	45
5	35	7	10	----	------	----	----
6	45	9	15	----	------	----	----
8	55	12	17	----	------	----	----
10	70	18	22	----	------	----	----
23	130	23	30				
45	140	23	28				
30	185	35	40				
55	200	----	----				

Release Valves

Type No.	Price Each
814	**$1.50**
835	**2.50**

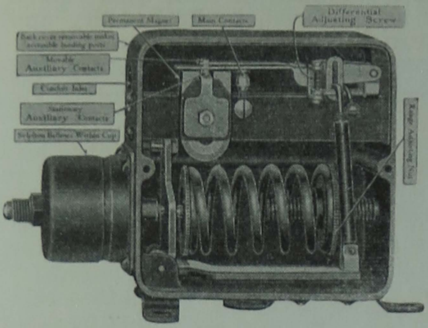
When ordering, specify:
1—Opening and closing pressure or temperature.
2—Maximum pressure.
3—Type of liquid or gas switch will control.
4—Release valve if required.

WESTINGHOUSE SWITCHES

TEMPERATURE — PRESSURE — VACUUM

Class 15-061 — Type L — Bellows Operated

For Pilot Circuits or for Motor Control


Permanent Magnet
Main Contacts
Differential Adjusting Screw
Back cover removable making accessible binding posts
Movable Auxiliary Contacts
Conduit Inlet
Stationary Auxiliary Contacts
Sylphon Bellows Within Cup
Range Adjusting Nut

40—

Type L Regulator (Without Cover) — Model LP

All Type L controls incorporate the service-proved magnet-contact structure. This insures strong, vibration-proof snap-action. Type L switch may be mounted in any position. It is the ideal control for installation on moving equipment. Many standard combinations of range and differential available in the Type L line make it the standard for meeting practically all problems of temperature or pressure control. Case is pressed steel, sturdy, attractive. All ferrous metal parts are protected against rust and corrosion.

Type L, Models LP and LT, are single-pole, single-break controls. For use with any type of compressor or with any refrigerant. Operation is secured either by pressure (Model LP) or by temperature (Model LT), as the installation requires. Type L, Models LP and LT close the circuit on high pressure or temperature and open it at the low pressure or temperature.

Model LPY (pressure) and Model LTY (temperature) are double-pole and incorporate a double control arm. The two segments operate simultaneously but are insulated from each other. Available only for closing circuit on high temperature or pressure; opening on low. Used for breaking two wires of a three-phase circuit, or to handle two separate and independent circuits.

Pressure and Temperature Specifications

PRESSURE

Range — Adjustable		Differential — Adjustable	
Minimum Opening	Maximum Closing	Minimum	Maximum
20" Vac.	30 lbs.	1½ lbs.	8 lbs.
		— or —	
5 lbs.	60 lbs.	3 lbs.	15 lbs.
		— or —	
40 lbs.	175 lbs.	3 lbs.	25 lbs.
60 lbs.	225 lbs.	Wider Differentials Available on Request	

TEMPERATURE (Fahrenheit)

Range — Adjustable		Differential — Adjustable	
Minimum Opening	Maximum Closing	Minimum	Maximum
— 20°	+ 40°	2°	8°
— 5°	+ 50°	4° — or —	30°
+ 20°	+ 75°	Higher Ranges and Wider Differentials Available on Request	
+ 40°	+100°		
+ 60°	+130°		
+100°	+170°		

PRICES AND RATINGS

Close Circuit at High Pressure or Temperature
Open Circuit at Low Pressure or Temperature

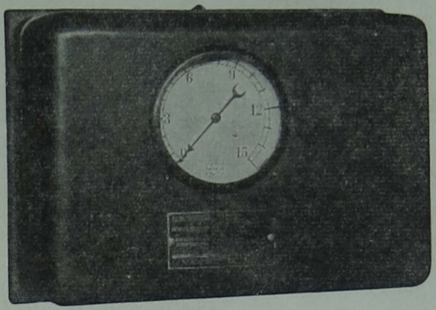
Model	MAXIMUM HORSEPOWER D-C. 115-230 V.	MAXIMUM HORSEPOWER A-C. 110-220 V.	Max.* Pilot Circuit Volts	No. of Poles	Approx. Shpg.Wt. Lbs.	Price Each
LP, LT, LRV	½	1	550	1	5	**$17.00**
LPY, LTY	½	1	550	2	6	**21.00**

*.5 amperes maximum at 550 volts.

WESTINGHOUSE REGULATORS

GAUGE TYPE — PRESSURE

Class 15-066 — For A-C. or D-C. Pilot Circuits Only



For automatic control of motor-driven pumps, air compressors, etc., and must always be used in connection with a suitable type of automatic starter. Handles the control circuit of any standard Westinghouse d-c. or a-c. automatic starter up to and including 300 amperes. Above 300 amperes, it is necessary to insert a Class 15-825 contactor panel.

Gauge, contact mechanism and relay are permanently mounted on a cast-aluminum base and covered with a drawn-shell cover having a black finish. With the cover on, only the dial pressure gauge is visible through a glass-covered opening. The regulator consists essentially of a Bourdon tube to which is geared the needle to indicate the pressure on a dial, the contact mechanism, and the pilot relay whose operating coil is controlled by the contact mechanism on the gauge.

Standard pressure regulators for 15 to 800 lbs. inclusive are equipped with bronze Bourdon tubes and cannot be used with liquids or gases which act directly upon bronze. Regulators for 1,000 to 10,000 lbs. are regularly equipped with steel tubes only.

Important: When ordering, give voltage, frequency and pressure range desired.

Full Scale Rating	PRESSURE IN POUNDS Minimum to Close	PRESSURE IN POUNDS Maximum to Open	Minimum Range*	Shpg. Wt., Lbs.	Price Each†
15	3	12	0.3	35	**$60.00**
30	6	24	0.6	35	**60.00**
60	12	48	1.2	35	**60.00**
100	20	80	2.0	35	**60.00**
160	32	128	3.2	35	**60.00**
300	60	240	6.0	35	**60.00**
500	100	400	10.0	35	**68.00**
800	160	640	16.0	35	**68.00**
1000	200	800	20.0	35	**74.00**
2000	400	1600	40.0	35	**74.00**
5000	1000	4000	100.0	35	**74.00**
10000	2000	8000	200.0	35	**74.00**

*Stop indicators on regulator may be brought close enough together to give this range between high and low pressures.

†The standard regulator is for use with the following liquids and gases: acetylene, air, argon, carbon dioxide, carbon monoxide, chlorine (dry) helium, hydrogen, illuminating gas, methane, nitrogen, oxygen, steam, sulphur dioxide (dry) and water.

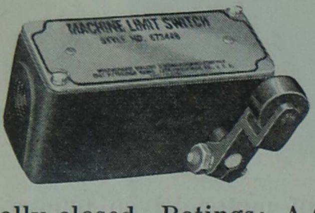
NOTE: A special regulator in sizes 100 lbs. to 800 lbs. only, provided with steel tubes for use with the following liquids and gases: alcohol, ammonia, benzol, caustic soda, chlorine, creosote, cyanide, gasoline, helium, hydrogen, methyl, nitric oxide, nitrogen, oxygen, sulphuric acid and toluol may be supplied at an addition price of **$31.00.**

WESTINGHOUSE LIMIT SWITCHES

CLASS 15-075 — DIRECT-ACTING TYPES

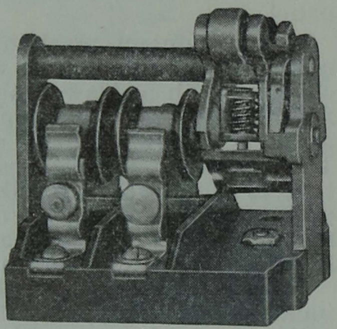
These comprise a complete line of knocker-type limit switches. They meet requirements of all applications from machine tool, where small size and low cost are desired, to heavy-duty applications, such as cranes, hoists, ore bridges and car dumpers.

Type ML Machine Limit Switch



A small inexpensive switch for machine tools where operating speeds are moderate. Operating lever is 1-inch Micarta duck roller, spring return. Contacts are double-break, normally open or normally closed. Ratings: A-C., 550 volts, 15 amperes; D-C., 250 volts, 1.5 amperes. Case—weatherproof and tapped for ½-inch conduit.

Type SU Switch Units

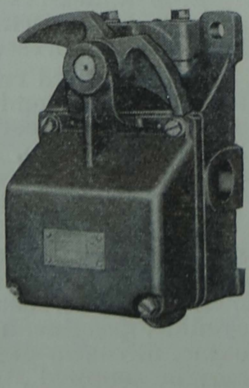


Unusually accurate in operation. For use as unit in limit switches. May be built into machines and appliances. Operating lever forked with rollers, maintained - contact type. Contacts are single and 2-pole, double - break, quick-make and quick-break. Normally open or normally closed. Ratings: A-C., 600 volts, 15 amperes; D-C., 250 volts and below, 7 amperes; D-C., 600 volts, 1.5 amperes.

Type HS Hatchway Limit Switch

For use in hatchways, on cranes, machine tools and mill machinery moving at moderate speeds. Operating lever is 2-inch wheel, spring return. Contacts are HS-1,-2,-3: single or 2-pole, double-break and HS-6, HSN: single-pole. Ratings: A-C., 600 volts and below, 15 amperes; D-C., 250 volts and below, 5 amperes; D-C., 600 volts, .75 ampere.

Type SL Stroke Limit Switch



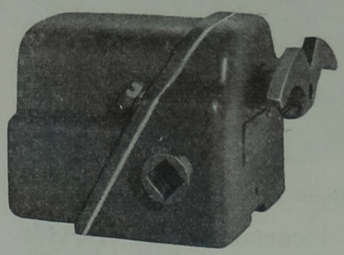
Primarily for heavy-duty, high-speed machine tool application. Two of these may be used together as a planer platen limit switch. Operating lever is butterfly, maintained - contact type. Contacts are Type SU switch unit style; double-pole, double - break, quick - make and quick-break. Case is weather-proof; tapped for ¾-inch conduit. Ratings: A-C., 600 volts, 15 amperes; D-C., 250 volts and below, 7 amperes; D-C., 600 volts, 1.5 amperes.

WESTINGHOUSE LIMIT SWITCHES

CLASS 15-075 — DIRECT-ACTING TYPES

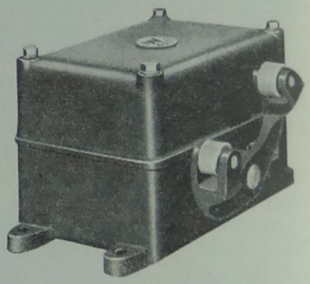
These comprise a complete line of knocker-type limit switches. They meet requirements of all applications from machine tool, where small size and low cost are desired, to heavy-duty applications, such as cranes, hoists, ore bridges and car dumpers.

Type PL Precision Limit Switch



Very accurate in operation due to unusual tripping device. Designed primarily for machine tool applications. May be applied to very slow moving parts successfully due to its quick - break action. Operating lever is butterfly type or 1-inch Micarta roller with spring return. Contacts are Type SU switch unit style; double-pole, double-break, quick-make and quick-break. Case is weather-proof; tapped for ¾-inch conduit. Ratings: A-C., 600 volts, 15 amperes; D-C., 250 volts and below, 7 amperes; D-C., 600 volts, 1.5 amperes.

Track Type Limit Switch



For severe material handling and mill applications. Operating lever is forked with roller, maintained-contact type. Contacts are 2-pole, double-break, normally open or normally closed. Ratings: A-C., 600 volts, 15 amperes; D-C., 230 volts, 4 amperes; D-C., 550 volts, 1 ampere.

Functional Name of Limit Switch	Type No.	Poles	Shpg. Wt. Lbs.	Price Each
Spring Return				
Machine (Normally closed)	ML	1	1	$6.00
Machine (Normally open)	ML	1	1	6.00
Hatchway	HS-1	1	10	11.00
Hatchway	HS-2	2	10	12.00
Hatchway	HS-3	1–1	10	16.00
Hatchway (Long travel)	HS-6	1–1	12	23.00
Hatchway (Water-tight)	HSN	1–1	16	34.00
Machine Precision	PL	1–1	12	16.00
Maintained-Contact				
Machine Precision	PL	2	12	16.00
Stroke (Planer)	SL	2	15	32.00
Track	438-A	2	20	25.00
Track (Water-tight)	442-A	2	26	50.00
Track (Heavy-duty)	15-080	2	60	100.00
Unit Only	SU-1	1	1	9.00
Unit Only	SU-2	2	1	10.00

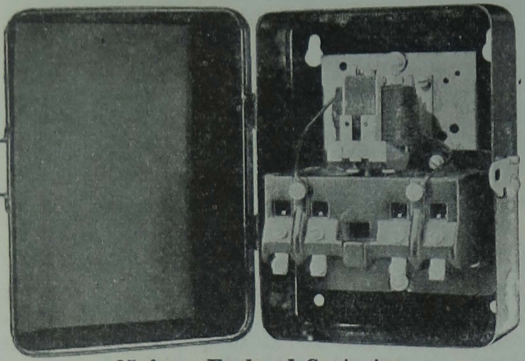
Ordering Information

When ordering specify: 1 — Functional Name and Type No.; 2 — Number of Poles Normally Open; 3 — Number of Poles Normally Cosed; 4 — Type of Operating Lever; 5 — Whether Spring Return or Maintained-Contact.

WESTINGHOUSE "DE-ION" CONTACTORS

CLASS 15-825 — MOUNTED — A-C.

Open and Enclosed — 110, 220, 440 Volts
60 and 50 Cycles — 1, 2, 3 and 4 Poles



25-Amp. Enclosed Contactor

General industrial applications where overload protection is not required, such as controlling motors which operate infrequently, heaters, lights, etc. Prices include mounted contactor with front connected terminals and electrical interlock for 3-wire pushbutton control (15 to 300-ampere ratings). There is no deduction for omission of interlock. For pushbutton control for 600-ampere ratings and larger, add **$29.00** for auxiliary control relay mounted on the panel. Contactors will be shipped connected for common control circuit, but may be changed easily by customer if separate control circuit is desired.

IMPORTANT: When ordering, specify: Nomenclature Class number; Ampere rating, Number of poles, Voltage and Frequency and for 600-ampere rating, whether auxiliary relay is required.

ENCLOSED CONTACTORS

Size No.	No. of Poles	Enclosed 8-Hour Ampere Rating	Nomenclature Class	Approx. Wt. Lbs.	PRICE Contactor with Interlock	Contactor Frame No.
			110, 220, 440 Volts			
0	1*	13.5	15-825-S0	9	**$9.00**	Dn-020
	2	13.5	15-825-S0	9	**10.00**	Dn-020
	3†	13.5	15-825-S0	10	**11.00**	Dn-040
	4	13.5	15-825-S0	10	**14.00**	Dn-040
1	1*	22.5	15-825-S1	9	**11.00**	Dn-120
	2	22.5	15-825-S1	9	**12.00**	Dn-120
	3†	22.5	15-825-S1	11	**13.00**	Dn-140
	4	22.5	15-825-S1	11	**16.00**	Dn-140
2	2	45	15-825-S2	36	**23.00**	Dn-220
	3	45	15-825-S2	40	**25.00**	Dn-230
	4	45	15-825-S2	45	**32.00**	Dn-240
3	2	90	15-825-S3	60	**40.00**	Dn-320
	3	90	15-825-S3	65	**43.00**	Dn-330
	4	90	15-825-S3	75	**53.00**	Dn-340
4	2	135	15-825-S4	65	**96.00**	Dn-420
	3	135	15-825-S4	75	**102.00**	Dn-430
	4	135	15-825-S4	90	**137.00**	Dn-440
			220 and 440 Volts Only			
5	2	270	15-825-F	350	**174.00**	62-F5
	3	270	15-825-F	425	**188.00**	65-F5
6	2	540	15-825-G	550	**483.00**	72-F2
	3	540	15-825-G	600	**546.00**	72-F2
7	2	900	15-825-P	750	**599.00**	92-F2
	3	900	15-825-P	800	**677.00**	92-F2

*These are 2-pole assemblies, one pole being used as the interlock.

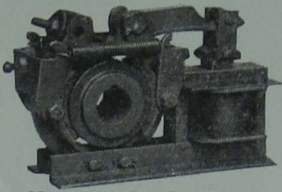
†These are 4-pole assemblies, one pole being used as the interlock.

WESTINGHOUSE MAGNETIC BRAKES

CLASS 15-340 — TYPE AI BRAKES

For Alternating Current Motors

3 to 6000 Lb. Ft. Torque — 60, 50 Cycles — 220, 440, 550 Volts



Class 15-340-A Floor Mounted Type AI Brake

These magnetic brakes are used on cranes, hoists, bridges, door and window operators, printing presses, rotating machinery, conveyors, and in similar applications where it is necessary to quickly stop or hold a load. Not for lowering loads.

They provide positive operation with minimum of attention. The brake shoes are quickly and firmly clamped against the brake wheel by a heavy coil compression spring which assures smooth retardation and which holds the load securely.

Features: Small-diameter low-inertia brakewheel premits quicker starting and stopping and requires less power for starting; non-chattering and non-dragging brake shoes assure quiet and economical operation; accurately machined and balanced wheels prevent vibration; rolled steel base and frames provide maximum strength with light weight; only 3 independent adjustments, all accessible at top of brake; hardened (nitrided) pins at all bearing points assure long life; right or left-hand mounting by separate adaptors; manual release attachment holds brake released for inspection and brake lining renewal—may be added to any brake; reinforced, woven, braided copper wire and asbestos fabric brakeshoe lining; self-aligning feature and unrestricted movement of brake arms and shoes; brakes designed for floor mounting but, by addition of an adaptor, may be easily mounted on Westinghouse induction motors.

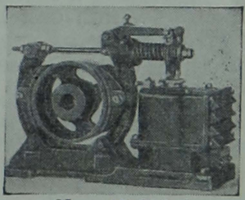
Continuous rated brakes should be applied in all cases except where the motor is operated intermittently.

CLASS 15-330-A — TYPE DI BRAKES

For Direct-Current Motors

115, 230, 550 Volts — Series and Shunt Wound
19 to 6000 Lb. Ft. Torque

These magnetic brakes are used on steel mill machinery, cranes, hoists, lift bridges, turntables, conveyors, and similar applications where it is necessary to quickly stop or hold the load.

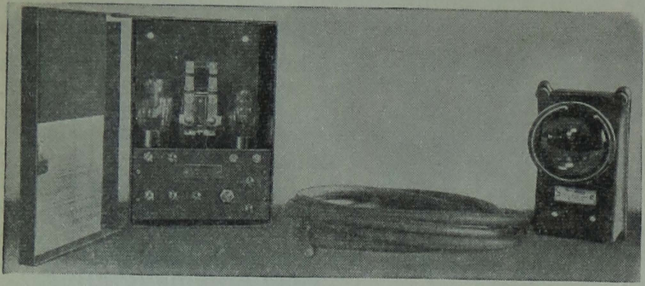


Class 15-330-A Type DI Brake

Standard Equipment: Floor mounted; spring set; self-aligning shoes that will not drag; short travel magnet of solenoid type; small balanced wheels reduce inertia; three independent adjustments, easily accessible; hand release attachment; enclosed, ventilated, weather-proof magnets which are removed easily as complete unit; brake mechanism adjusts itself to any reasonable misalignment with motor; brake alignment easily checked as pins connecting link between magnet plunger and operating arm are in same vertical plane when motor and brake are properly aligned; woven asbestos fabric and braided copper shoe lining which has a high coefficient of friction and is little affected by heat or moisture; series brakes release at 40% and hold released down to 10% of full load current; shunt brakes release at 80% voltage; quick, snappy operation of shunt brakes is obtained by using half voltage coils with separately mounted series and discharge resistors.

WESTINGHOUSE PHOTO-TROLLERS

GENERAL-PURPOSE PHOTO-TROLLER



Type LE Photo-Troller Showing Light Source

Photo-Trollers are general-purpose photo-electric relays operated by an increase or decrease in the amount of light falling on the phototube. Arranged to initiate an electrical sequence in response to changes of illumination caused by partially or completely making or breaking a light beam. A few installations are shown which are representative of the great variety of applications:

Limit or "flag" switch where a mechanical switch is undesirable such as for—

Paper mills, break indicator; automatic weighing; sheet catcher in steel mill; oscillating grinder belt; paper and cellophane bag machines; registering wrapper trademark on packaging machines; stopping mechanical devices at accurate position; liquid level control; initiating flying shear.

Counting—Parts on production lines such as crankshafts, boxes, tin sheets; people entering or leaving buildings; automobile traffic.

Safety Control for—Elevator doors; pulverized fuel furnaces; punch presses; railroad crossings on industrial sidings. Door opening.

In order that maximum flexibility of application may be obtained, Photo-Trollers are listed without light sources or phototube housings. Available for both a-c. or d-c. service. Also available for indoor and outdoor use.

Type LE is a low-priced, general-purpose Photo-Troller, which can be used for many applications not requiring as great a sensitivity as can be obtained with the Type RX. Types RX-1, RX-2, RXT, RL and RK are also available.

Catalog number and price include tubes except Phototubes.

Type RX Indoor—Self-Contained

Cat. No.	Volts	Cycles	†Foot-candles	Shpg. Wt. Lbs.	Price Includ'g Tubes
1083 311	115–230	50–60	5	21	**$58.00**
1083 312	220–240	50–60	5	21	**58.00**

Type LE Indoor

Cat. No.	Volts	Cycles	†Foot-candles	Shpg. Wt. Lbs.	Price Includ'g Tubes
***838 021**	115	25–60	35	13	**35.00**
838 026	115	D-C.	35	13	**35.00**

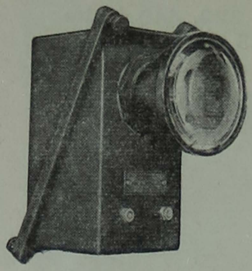
† Minimum operating illumination footcandles.

* Must operate on grounded supply. If line is not grounded or if voltage is abnormally high or low, add transformer No. 874053 at **$7.00** list.

Primary — 105-115-125 volts 25-60 cycles. Secondary No. 1 — 6 volts, 5.0 amperes for S light source. Secondary No. 2 — 115 volts, 0.35 amperes for Photo-Troller windings. Insulated to permit grounding secondaries.

WESTINGHOUSE PHOTOTUBE HOUSINGS

FOR INDOOR AND OUTDOOR SERVICE



Type S Phototube Housing

General-purpose industrial devices for use with 18-316 light source, and are for the purpose of supplying a socket and housing for phototubes when mounted separately from the photo-electric controller or Photo-Troller, on an extended lead, or on the controller cabinet.

Phototube Housings may be located in any convenient position and location where mechanical vibration is not so great as to mechanically cause damage and must be rigidly mounted to insure constant alignment with the light beam. While the housing may be mounted up to the maximum distances from the cabinets, they should be mounted as near as possible to reduce the length of lead which must be composed of the cable recommended and run without other wires in grounded conduit. It is absolutely necessary that leads as specified be used with this equipment.

These Phototube Housings must not be operated in an ambient temperature above 160° F. If they are subject to radiant heat as from hot metals, special cooling or heat filters may be requested.

Type S comprises a cast case suitable for mounting on conduit. Has 3-inch diameter lens which increases the sensitivity of a Photo-Troller four times compared with the other housings having no collecting lens. It can be furnished with gaskets to make it splash proof. It can also be furnished with an aperture to permit installation where daylight or other high light intensity would adversely affect operation of Photo-Trollers with other housings. This housing should not be used if a small diameter light beam is required.

Simplicity of designs reduces the usual high cost for this type of equipment. The pipe mounting, socket and lens are rigidly fixed with respect to each other.

The lens can be focused without removing the housing cover. The lamps and phototubes are readily accessible for replacement by simply removing the housing cover.

Housings are finished in dull black; overall dimensions, 7¼x5¾x3$\frac{9}{16}$ inches.

Other types of housings are available. Type A cast-aluminum for general-purpose applications; Type B for splash-proof applications; Type D with window in flat plate instead of light admittance cylinder.

Cat. No.	Tubes Required	Description	Shpg. Wt. Lbs.	Price Each
839 552	1-SK60	(see below*)	6	**$18.50**

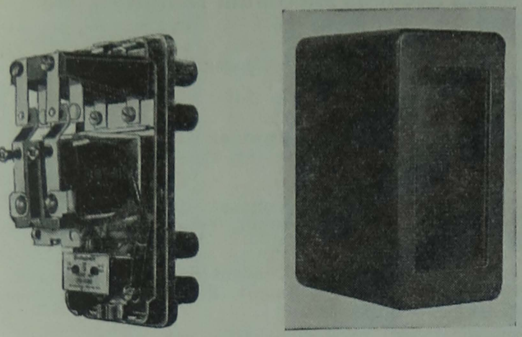
*To increase sensitivity of Photo-Troller by collecting light. Divide footcandle rating of Photo-Troller by 4 when using type S housing. Use with LE relay. 10-foot leads.

When leads longer than 10-ft. are desired and may be used with Photo-Troller, add a separate item specifying desired length of leads PDS-5344. Cable **$0.15** per foot W-2 for length over 10 feet.

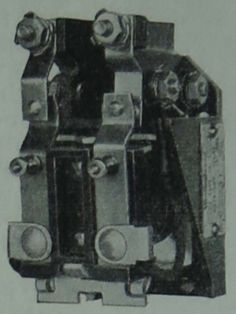
WESTINGHOUSE GENERAL-PURPOSE RELAYS

TYPE SG AUXILIARY RELAYS

Closed and Open Types for A-C. and D-C. Use



Type SG Relay with Cover Off, and Molded Cover with Glass Window
This Relay has Two Make and Two Break Contacts



Open Type SG Auxiliary Relay with One Make and One Break Contact

Type SG is a small and sturdy auxiliary relay that finds a multitude of uses where not more than 2 independent circuits are to be made or broken. Relay is obtainable in 2 forms; closed type with a molded cover or molded cover with glass front, and front connected open-type without cover.

Open type may be mounted in individual sheet steel cabinet or in larger cabinet with other apparatus.

This relay is designed for continuous duty at rated voltage and can be used on circuits up to 575 volts a-c. or 600 volts d-c. On voltages up to 250, relay can be used for intermittent duty up to approximately 3 times continuous value.

Interrupting capacity of each contact on non-inductive load is shown in table below.

	Interrupting Rating Amperes		
	D-C.		A-C.
Volts	1 Gap	2 Gaps in Series	1 Gap
24	15	50	60
48	8	35	45
115	2.4	20	30
230	.75	2.5	20
550	.25	.5	10

Each contact will carry 12 amperes continuously and 30 amperes for 1 minute. Contacts are of silver alloy to assure maintained current-carrying capacity and to prevent sticking.

Moving contact fingers have contact surfaces on both sides so that stationary contacts can be easily reversed to obtain either a "make" or "break" contact. As shipped, both stationary contacts are arranged to make contact.

Open-type relays only can be obtained with 2 extra contacts, thus providing the equivalent of a 2-pole, double-throw relay with moving contacts common.

Operating time is approximately 1 to 2 cycles (60 cycle basis) and for most applications this characteristic is required.

Time delay of approximately .1 second can be provided on d-c. relays. This is secured by the use of a heavy copper ring on the magnet core. For this close setting the relay can be used only for intermittent service.

By use of a 30 mfd. condenser, with or without series resistor connected across relay coil, a maximum time delay of about .5 second can be obtained. For this greater setting the relay can be used for continuous duty.

Catalog number of list price include either open or closed-type relay as listed for d-c., 25, 50 or 60 cycles.

When 2 additional contacts are required on open-type relay for making it 2-pole, double-throw, add **$1.00** list. For closed-type relay with glass front cover, add **$0.25** to list price.

				CLOSED TYPE 2 Make—2 Break Contacts Moving Contact Common			OPEN TYPE† 2 Contact with Stationary Reversible Contacts		
					Relay			Relay	
Volts	Cycles	Ohms Resistance Relay Coil	Amperes	Coil Cat. No.	Cat. No.	Each	Coil Cat. No.	Cat. No.	Each
....	D.C.	2.5	....	**1059282**	**1157848**	**$7.50**	**1059282**	**1157852**	**$5.00**
....	D.C.	0.33	....	**1059284**	**1157849**	**7.50**	**1059282**	**1157853**	**5.00**
....	D.C.	0.1	....	**1059286**	**1157850**	**7.50**	**1059286**	**1157854**	**5.00**
24	D.C.	185	0.130	**1008517**	**1155687**	**7.50**	**1008517**	**1059231**	**5.00**
48	D.C.	725	0.066	**1008520**	**1155688**	**7.50**	**1008520**	**1008534**	**5.00**
125	D.C.	4430	0.028	**1008524**	**1155689**	**7.50**	**1008524**	**1008535**	**5.00**
250	D.C.	4430	0.028	**1008524**	**1155690**	**7.50**	**1008524**	**1008536**	**5.00**
115	50 & 60	185	0.087	**1008517**	**1155693**	**7.50**	**1008517**	**1008539**	**5.00**
230	50 & 60	725	0.044	**1008520**	**1155694**	**7.50**	**1008520**	**1008540**	**5.00**
460	50 & 60	2770	0.022	**1008523**	**1155695**	**7.50**	**1008523**	**1008541**	**5.00**

†Open type relays can be obtained at no additional price with 2 make and 2 break contacts having moving contact common. When ordering, give "similar to catalog number .... except with 2 make and 2 break contacts.

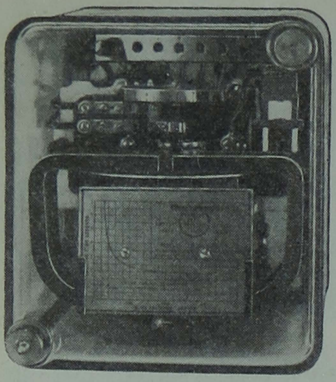
SHEET METAL CABINETS

Two sizes of sheet metal cabinets for mounting the open-type SG relays can be supplied for industrial applications, etc., where it is desired to enclose one or two relays for conduit wiring or where it is desired to mount the relays near the machine. Both cabinets have knockouts for conduit connections.

No. of Relays to be Mounted in One Cabinet	Dimensions in Inches			Cat. No.	List Each
	Height	Width	Depth		
One	5$\frac{7}{16}$	4$\frac{1}{8}$	4$\frac{1}{8}$	**1095 760**	**$0.90**
Two	5$\frac{7}{16}$	8$\frac{1}{8}$	4$\frac{1}{8}$	**1095 759**	**1.35**

WESTINGHOUSE SLOW-SPEED RELAYS

GENERAL OVERCURRENT PROTECTION—TYPE CO



Type CO Single Element Relay

The CO overcurrent relay is widely used for protection of circuits and apparatus when currents flowing in these circuits exceed a predetermined value for a given time. Among the wide variety of uses for this relay, the most common are:

Protection of outgoing feeders, transmission lines, generating stations, substations, distribution feeders at substations, and motor and transformer circuits. Type CO relays are available in 3 different forms based on energy consumption and time delay:

(1) Standard-energy, definite time. (2) Low-energy, inverse time. (3) Low-energy, very inverse time.

These relays are available also in 3 dfferent forms of contacts: (1) To close a single contact. (2) To close 2 contacts so that relay will trip either 2 breakers, or trip 1 breaker and simultaneously close an alarm circuit. (3) To open a single circuit to trip a breaker from a current transformer. (Series Trip).

The circuit-closing CO relays are more commonly used as they lend themselves to most tripping applications; that is, d-c. or a-c. shunt tripping, current transformer trip coils with direct trip attachments, or saturating-type tripping transformers.

CO relays are further classified according to time delay obtainable. (1) Regular relay gives 2 seconds definite minimum time on No. 10 time lever setting and proportional time on other settings. (2) Long-time 40-second relay is for applications where sufficient time delay cannot be obtained with 2- or 4-second relays.

An example of such an application is overcurrent protection of motors having heavy starting currents that may persist 10 or more seconds above full load.

The 40-second relay is a 4-second standard energy relay provided with 10 to 1 ratio geared contacts.

To provide fast clearing of heavy internal faults in motor, relays can be provided with self-contained instantaneous-trip attachments available in the following ampere ranges: 10-40, 20-80, and 40-160.

Standard-Energy, Definite Time Relay—Moving contact is connected directly to disc shaft, giving quick break and a fast reset to starting position.

Low-Energy, Inverse Time Relay—Moving contact is geared to the induction disc shaft.

Low-Energy, Very-Inverse Time Relay—The burden of this relay is 1¼ volt-amperes at pick-up point. Moving contact is geared to induction disc shaft similar to low-energy type, but uses a different electromagnet and different gears.

The catalog number and list price include relays with standard-energy, definite time; low-energy, inverse time; or low-energy, very-inverse time characteristics, and with Universal, gravity-type target complete as listed.

Standard-Energy, Definite-Time Relays

2.2 Seconds Maximum Definite Time

Cat. No.	Range Amperes	Frequency Cycles	Price Each
Single Circuit-Closing Contact*			
1 056 003	2–6	60	**$46.00**
1 056 006	4–15	60	**41.00**
Single Circuit-Closing Contact with 10-40-Ampere Instantaneous Trip Attachment, Two 0.2 Ampere Targets			
1 056 015	4–15	60	**52.00**
Single Circuit-Closing Contact with 10-40-Ampere Instantaneous Trip Attachment, Two 1.0 Ampere Targets			
1 056 018	4–15	60	**52.00**
Single Circuit-Closing Contact with 20-80-Ampere Instantaneous Trip Attachment, Two 0.2 Ampere Targets			
1 056 021	4–15	60	**52.00**
Single Circuit-Closing Contact with 20-80-Ampere Instantaneous Trip Attachment, Two 1.0 Ampere Targets			
1 056 024	4–15	60	**52.00**
Double Circuit-Closing Contact*			
1 056 009	2–6	60	**50.00**
1 056 012	4–15	60	**45.00**

2.2 Seconds Maximum Definite Time

With 4-Ampere, A-C Gravity Type Target
Single Circuit-Opening Contact
For Current Transformer Series Tripping

Cat. No.	Range Amperes	Frequency Cycles	Price Each
1099 655	4–15	60	**53.00**

Long-Time, 40 Seconds Maximum Definite Time Geared Type

Cat. No.	Range Amperes	Frequency Cycles	Price Each
Single Circuit-Closing Contact*			
1 056 027	4–15	60	**58.00**
Single Circuit-Closing Contact with 10-40-Ampere Instantaneous Trip Attachment, Two 0.2 Ampere Targets			
1 056 028	4–15	60	**69.00**
Single Circuit-Closing Contact with 10-40-Ampere Instantaneous Trip Attachment, Two 1.0 Ampere Targets			
1 056 029	4–15	60	**69.00**

Low-Energy, Inverse-Time Relays

2.2 Seconds Inverse Time

Cat. No.	Range Amperes	Frequency Cycles	Price Each
Single Circuit-Closing Contact*			
1 056 203	0.5–2.5	60	**46.00**
1 056 206	2–6	60	**46.00**
1 056 209	4–15	60	**41.00**
Single Circuit-Closing Contact with 10-40-Ampere Instantaneous Trip Attachment, Two 0.2 Ampere Targets			
1 056 228	0.5–2.5	60	**57.00**
1 056 229	2–6	60	**57.00**
1 157 898	4–15	60	**52.00**
Single Circuit-Closing Contact with 10-40-Ampere Instantaneous Trip Attachment, Two 1.0 Ampere Targets			
1 056 230	0.5–2.5	60	**57.00**
1 056 231	2–6	60	**57.00**
1 157 899	4–15	60	**52.00**
Double Circuit-Closing Contact*			
1 056 212	0.5–2.5	60	**50.00**
1 056 215	2–6	60	**50.00**
1 056 218	4–15	60	**45.00**
Single Circuit-Closing Contact* Quick Opening After Operation For Use Where Breaker is Instantaneously Reclosed			
1 056 221	0.5–2.5	60	**46.00**
1 056 224	2–6	60	**46.00**
1 056 227	4–15	60	**41.00**
Single Circuit-Opening Contact With 4-Ampere, A-C., Gravity-Type Target For Current Transformer Series Tripping			
1 059 801	4–15	60	**53.00**

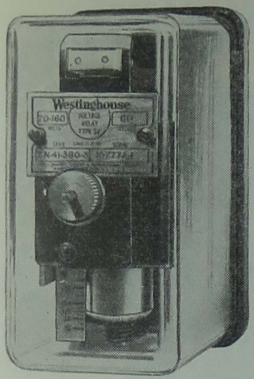
Low-Energy, Very-Inverse-Time Relays

Cat. No.	Range Amperes	Frequency Cycles	Price Each
Single Circuit-Closing Contact*			
1 056 234	0.5–2.5	60	**50.00**
1 056 237	4–15	60	**50.00**

* Relays include Universal gravity-type target. Resistance of target coil is 2.8 ohms; in parallel with contactor-switch coil; 0.25 ohms.

WESTINGHOUSE HIGH-SPEED RELAYS

TYPES SC, SC-1 CURRENT RELAYS AND SV, SV-1 VOLTAGE RELAYS



The SC, SC-1, SV, and SV-1 are the same in construction. The difference between these types of relays is the rating of the coils and dropout values. The particular relay that would be used, in general, would depend on the application. For fault detector relays used for short-circuit protection, a high dropout value is generally preferable.

This line of relays, working on the principle of an instantanous solenoid, is accurate in operation, simple in design, has durable construction, and is adjustable so a range ratio of 1 to 4 on the current adjustment and better than 1 to 2 on the voltage adjustment can be obtained.

The relay has two independent contact circuits which are adjustable from 2 make to either 2 break or 1 make and 1 break. Large silver contacts will carry 5 amperes continuously and will interrupt 5 amperes a-c. or 1 ampere d-c. at 110 volts. All relays are provided with mechanical targets.

The operating point of this line of relays is obtainable by means of a magnetic shunt which gives continuous adjustment between the minimum and maximum operating values.

The main application of these relays is for instantaneous over-current or over-voltage protection; relays are set for circuit closing with shunt tripping schemes or circuit opening for a-c. tripping schemes where secondary current is limited to 50 amperes. On a-c. tripping schemes, contact normally by-passes the breaker trip coil.

These relays require only 2$\frac{15}{16}$ inches mounting space on a panel. Shipping weight, one relay per package, 7 pounds; standard package of 18 relays, 82 pounds.

TYPE SC RELAY

Ratio drop-out to pick-up: 90-98% on A-C., 60-90% on D-C.

Cat. No. Self-Reset Contacts	Pick-Up Ampere Range	Frequency Cycles*	Price Each	Continuous Ampere Rating	Volt-Amp.† Burden at 5 Amperes 60 Cycles	Watts at† 5 Amperes 60 Cycles	Watts at 5 Amperes D-C.	Coil Cat. No.
1096 937	0.5–2	D-C. to 60	**$25.00**	1.5	225	99	60	1003 396
1096 938	1– 4	D-C. to 60	**25.00**	3	65	28	14	1003 397
1096 939	2– 8	D-C. to 60	**25.00**	6	19	6.9	3.6	1003 398
1096 940	4– 16	D-C. to 60	**25.00**	12	5	1.5	.9	1003 399
1096 941	10– 40	D-C. to 60	**25.00**	25	.7	.24	.17	1003 400
1096 942	20– 80	D-C. to 60	**25.00**	40	.16	.06	.04	1003 401
1100 866	40–160	D-C. to 60	**25.00**	40	.05	.03	.02	1100 865
1094 830	4–100	D-C. to 60	**27.00**	10–15–20–30	5	1.7	1.1	1099 587

NOTE—4–100 ampere relay has tap block with taps for minimum settings of 4, 10 and 30, giving continuous range from 4 to 100 amperes.

Volt Amperes with pick-up current at the minimum setting are approximately 3.4 and 1.4 for 60 and 25 cycles. Watts with pick-up current at the minimum setting are approximately 1.0, .65 and .57 for 60 cycles and 25 cycles and D-C. respectively. Multiply these values by 16 for the approximate burdens with pick-up current at the maximum setting.

TYPE SC-1 RELAY

Ratio drop-out to pick-up: 35–75% on A-C., 20–40% on D-C.

Cat. No.		Pick-Up Ampere Range	Frequency Cycles*	Price Each	Continuous Ampere Rating	Volt-Amp.† Burden at 5 Amperes 60 Cycles	Watts at† 5 Amperes 60-Cycles	Watts at 5 Amperes D-C.	Coil Cat. No.
Self-Reset Contacts	Hand-Reset Contacts								
1096 943	**1096 949**	0.5–2	D-C. to 60	**$25.00**	1.5	210	100	60	1003 396
1096 944	**1096 950**	1– 4	D-C. to 60	**25.00**	3	60	24	14	1003 397
1096 945	**1096 951**	2– 8	D-C. to 60	**25.00**	6	16	6	3.6	1003 398
1096 946	**1096 952**	4– 16	D-C. to 60	**25.00**	12	5	1.5	.9	1003 399
1096 947	**1096 953**	10– 40	D-C. to 60	**25.00**	25	.65	.25	.17	1003 400
1096 948	**1096 954**	20– 80	D-C. to 60	**25.00**	40	.16	.06	.04	1003 401
1100 867	**1100 868**	40–160	D-C. to 60	**25.00**	40	.05	.02	.02	1100 865

NOTE—Volt Amperes with pick-up current at minimum setting are approximately 3.5 and 1.3 for 60 and 25 cycles. The Watts with pick-up current at minimum setting are 1.3, .7 and .57 for 60 cycles, 25 cycles and D-C. respectively. Multiply these values by 16 for the approximate burdens with pick-up current at maximum setting.

TYPE SV RELAY

Ratio drop-out to pick-up: 90–98% A-C., 60–90% on D-C.

Cat. No. Self-Reset Contacts	Pick-Up Voltage Range	Frequency Cycles	Price Each	Continuous Voltage Rating	Volt-Amp† at 115 Volts	Watts at 115V. A-C. (125V. D-C.)	Coil Cat. No.
1096 955	70–160	60	**$25.00**	200	7.3	3.4	1003 403
1096 956	70–160	50	**25.00**	200	6.1	2.8	1003 404
1096 957	70–160	25	**25.00**	200	2.5	1.5	1003 405
1096 958	50–150	D-C.	**25.00**	150	----	4.8	1003 406

TYPE SV-1 RELAYS

Ratio drop-out to pick-up: 35–75% on A-C., 20–40% on D-C.

Cat. No.		Pick-Up Voltage Range	Frequency Cycles	Price Each	Continuous Voltage Rating	Volt-Amp.† at 115 Volts	Watts at 115V. A-C. (125V. D-C.)	Coil Cat. No.
Self-Reset Contacts	Hand-Reset Contacts							
1096 959	**1096 963**	70–160	60	**$25.00**	200	8.5	4.1	1003 403
1096 960	**1096 964**	70–160	50	**25.00**	200	7.1	3.5	1003 404
1096 961	**1096 965**	70–160	25	**25.00**	200	3.2	1.4	1003 405
1096 962	**1096 966**	50–150	D-C.	**25.00**	150	----	4.8	1003 406

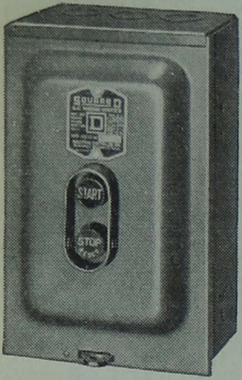
* The standard SC and SC-1 relays listed under these headings are calibrated on 60 cycles. This calibration also is correct within approximately 10 per cent, at the same points on the scale, on 25 and 50 cycles and D-C.

† These values may vary 10 to 15 per cent for various plunger and shunt positions.

SQUARE D MOTOR CONTROL

A.C. MANUAL STARTERS—LINE VOLTAGE TYPE—CLASS 2510

Push Button Operation—Overload Protection by Thermal Relays



General Purpose Enclosure

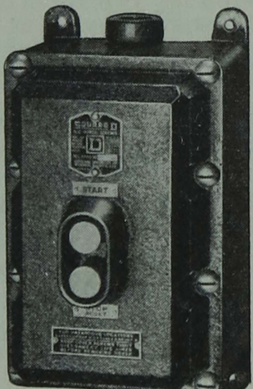
Push button control for starting and stopping single phase or polyphase motors. Overload protection by thermal relays which are reset from the stop button. These starters do not provide low voltage protection.

Some applications: Fans, blowers, compressors, line shafts for group drive, grinders, conveyors, portable electric tools, looms and other textile machinery.

General Purpose Enclosure—NEMA Type 1

Size	Poles	Volts	Max. H.P. Rating Poly-phase	Max. H.P. Rating Single Phase	Type	Price Each
0	2	110	......	1	W7	$6.50
		220	......	1½		
0	3	110	1½	1	W5	7.50
		208–220	2	1½		
		440–550	2	......		
1	2	110	......	1½	W14	8.50
		220	......	3		
1	3	110	3	1½	W10	9.50
		208–220	5	3		
		440–550	7½	5		

Water- and Dust-Tight



Explosion-Proof Enclosure

Water- or Dust-Tight, and Explosion-Proof Enclosures

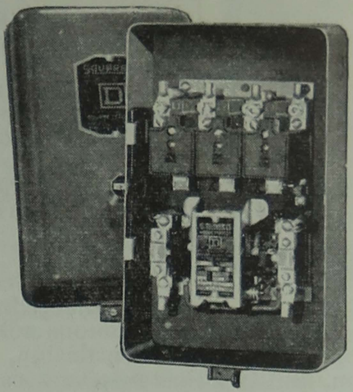
Water- or Dust-Tight Enclosures NEMA Types 4 or 5 Type	Price Each	Class I, Group D or Class II, Group G NEMA Types 7 or 9 Type	Price Each	Volts	Max. H.P. Rating Poly-phase	Max. H.P. Rating Single Phase
Size 0—2 Poles						
W8	**$18.00**	**W26**	**$23.00**	110	......	1
				220	......	1½
Size 0—3 Poles						
W6	**19.00**	**W27**	**24.00**	110	1½	1
				208–220	2	1½
				440–550	2	1½
Size 1—2 Poles						
W15	**22.00**	**W28**	**27.00**	110	......	1½
				220	......	3
Size 1—3 Poles						
W11	**23.00**	**W29**	**28.00**	110	3	1½
				208–220	5	3
				440–550	7½	5

Price of 2-pole starters includes one thermal overload relay. Price of 3-pole starters includes two thermal overload relays.

SQUARE D MOTOR CONTROL

A.C. AUTOMATIC STARTERS—LINE VOLTAGE TYPE

Low Voltage Protection or Release Overload Protection by Thermal Relays



Class 8536 — TG-2

General Purpose enclosures are of heavy gauge sheet steel, black enameled. Sizes 0, 1, 2 and 3 have slip-on covers and knockouts in top, bottom, back and sides. Sizes 4 and 5 have hinged covers and knockouts top, bottom and sides.

GENERAL PURPOSE ENCLOSURE—NEMA TYPE 1

Size	No. of Poles	Max. H.P. Rating Single Phase 110 V.	Max. H.P. Rating Single Phase 220 V.	Max. H.P. Rating Polyphase 110 V.	Max. H.P. Rating Polyphase 220 V.	Max. H.P. Rating Polyphase 440-550 V.	Type With Bi-metallic Relays	Type With Melting Alloy Relays	* Price
			A—Push Button in Cover **B—Separate Push Button** **C—Selector Switch in Cover**						
0	2	1	1½	....	.....	.....	....	RG-8A	$14
							....	RG-8B	12
							....	RG-8C	14
I	2	1½	3	....	.....	.....	SG-15A	SG-14A	16
							SG-15B	SG-14B	14
							SG-15C	SG-14C	16
I	2	3	5	....	.....	.....	SG-17A	SG-16A	20
							SG-17B	SG-16B	18
							SG-17C	SG-16C	20
0	3	1	1½	1½	2	2	....	RG-2A	16
							....	RG-2B	14
							....	RG-2C	16
I	3	1½	3	3	5	7½	SG-19A	SG-18A	18
							SG-19B	SG-18B	16
							SG-19C	SG-18C	18
			For Separate Push Button Station						
II	3	3	7½	7½	15	25	TG-3	TG-2	30
III	3	7½	15	15	30	50	UG-3	UG-2	50
IV	3	..	....	....	50	100	YG-3	C -1	112
V	3	..	....	....	100	200	ZG-3	G -1	226

*Control stations included in price only when built in cover. Prices include Thermal Relays.

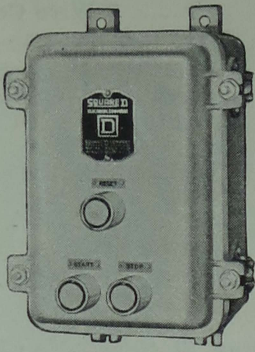
Ordering Instructions

1. Specify class number, type, horsepower, voltage, phase, cycles and full load current of motor.
2. Order thermal relays by relay number from table on catalog page following Square D Magnetic Starters.
3. Order suitable push button station from table on a following page.
4. If special features are desired, order Class 8536 similar to type .... and state clearly the features required.

SQUARE D MOTOR CONTROL

A.C. AUTOMATIC STARTERS—LINE VOLTAGE TYPE

Low Voltage Protection or Release
Overload Protection by Thermal Relays



Class 8536 — SW-14A or SW-6A

Water-Tight enclosures for sizes 0, 1, 2, 3 and 4 are of cast iron with aluminum finish. On special order, cadmium plating will be supplied without extra charge. All sizes have hinged covers fastened by swing bolts and rubber gaskets form a water-tight seal between cover and enclosing case. Threaded conduit entrances at top and bottom.

WATER-TIGHT ENCLOSURE—NEMA TYPE 4

Air Break Contactors—25-60 Cycles—Class 8536

Size	No. of Poles	Max. H.P. Rating Single Phase 110 V.	Max. H.P. Rating Single Phase 220 V.	Max. H.P. Rating Polyphase 110 V.	Max. H.P. Rating Polyphase 220 V.	Max. H.P. Rating Polyphase 440-550 V.	Type With Bi-metallic Relays	Type With Melting Alloy Relays	* Price
A—Push Button in Cover **B—Separate Push Button** **C—Selector Switch in Cover**									
0	2	1	1½	----	-----	-----	....	RW-8A	$29
							....	RW-8B	25
							....	RW-8C	29
I	2	1½	3	----	-----	-----	SW-15A	SW-14A	31
							SW-15B	SW-14B	27
							SW-15C	SW-14C	31
I	2	3	5	----	-----	-----	SW-17A	SW-16A	36
							SW-17B	SW-16B	32
							SW-17C	SW-16C	36
0	3	1	1½	1½	2	2	....	RW-2A	31
							....	RW-2B	27
							....	RW-2C	31
I	3	1½	3	3	5	7½	SW-7A	SW-6A	33
							SW-7B	SW-6B	29
							SW-7C	SW-6C	33
For Separate Push Button Station									
II	3	3	7½	7½	15	25	TW-7	TW-6	57
III	3	7½	15	15	30	50	UW-3	UW-2	87
IV	3	----	----	----	50	100	....	F -6	175

*Control stations included in price only when built in cover. Prices include Thermal Relays.

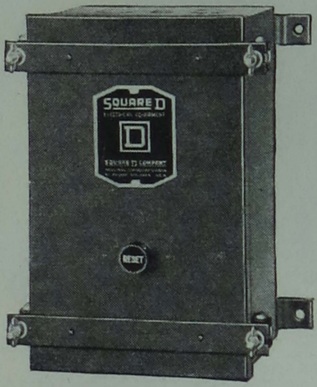
Ordering Instructions

1. Specify class number, type, horsepower, voltage, phase, cycles and full load current of motor.
2. Order thermal relays by relay number from table on catalog page following Square D Magnetic Starters.
3. Order suitable push button station from table on a following page.
4. If special features are desired, order Class 8536 similar to type .... and state clearly the features required.

SQUARE D MOTOR CONTROL

A.C. AUTOMATIC STARTERS—LINE VOLTAGE TYPE

Low Voltage Protection or Release
Overload Protection by Thermal Relays



Class 8536 — TD-10

Dust-Tight enclosures for sizes 0 and 1 are the same as water-tight enclosures. For sizes 2, 3 and 4 the enclosures are heavy gauge sheet steel, black enameled, with felt gaskets between box and cover. The covers are hinged and provided with reinforcing straps, through which the swing bolts are fastened. Knockouts for conduit connections at top and bottom.

DUST-TIGHT ENCLOSURE—NEMA TYPE 5

Air Break Contactors—25-60 Cycles

Class 8536

Size	No. of Poles	Max. H.P. Rating Single Phase 110 V.	Max. H.P. Rating Single Phase 220 V.	Max. H.P. Rating Polyphase 110 V.	Max. H.P. Rating Polyphase 220 V.	Max. H.P. Rating Polyphase 440-550 V.	Type With Bi-metallic Relays	Type With Melting Alloy Relays	* Price
A—Push Button in Cover **B—Separate Push Button** **C—Selector Switch in Cover**									
0	2	1	1½	----	-----	-----	....	RW-8A	$29
							....	RW-8B	25
							....	RW-8C	29
I	2	1½	3	----	-----	-----	SW-15A	SW-14A	31
							SW-15B	SW-14B	27
							SW-15C	SW-14C	31
I	2	3	5	----	-----	-----	SW-17A	SW-16A	36
							SW-17B	SW-16B	32
							SW-17C	SW-16C	36
0	3	1	1½	1½	2	2	....	RW-10A	31
							....	RW-10B	27
							....	RW-10C	31
I	3	1½	3	3	5	7½	SW-7A	SW-6A	33
							SW-7B	SW-6B	29
							SW-7C	SW-6C	33
For Separate Push Button Station									
II	3	3	7½	7½	15	25	TD-11	TD-10	46
III	3	7½	15	15	30	50	UD- 3	UD- 2	69
IV	3	--	----	----	50	100	....	C-5	143
V	3	--	----	----	100	200	....	G-5	299

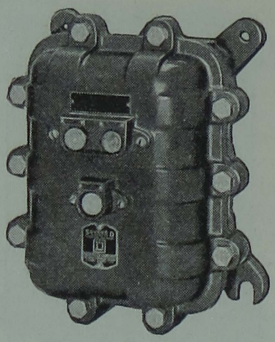
*Control stations included in price only when built in cover. Prices include Thermal Relays.

Ordering Instructions: See preceding column.

SQUARE D MOTOR CONTROL

A.C. AUTOMATIC STARTERS—LINE VOLTAGE TYPE—EXPLOSION PROOF

Low Voltage Protection or Release
Overload Protection by Thermal Relays



Class 8536 — SR-14A or SR-18A

Class I, Group D explosion-proof enclosures for sizes 1, 2 and 3 are of cast iron, black enameled. Covers and cases are machined to provide metal-to-metal seal as required by Underwriters' specifications for Class I, Group D hazardous locations as covered by Article 500, National Electric Code. Covers are adequately fastened to the case by cap screws to insure maintenance of seal. Threaded conduit entrances at top and bottom.

CLASS I, GROUP D—EXPLOSION-PROOF ENCLOSURE—NEMA TYPE 7

Air Break Contactors—25-60 Cycles—Class 8536

		Max. H.P. Rating					Type		
Size	No. of Poles	Single Phase 110 V.	Single Phase 220 V.	Polyphase 110 V.	Polyphase 220 V.	Polyphase 440-550 V.	With Bi-metallic Relays	With Melting Alloy Relays	* Price
							A—Push Button in Cover **B—Separate Push Button** **C—Selector Switch in Cover**		
I	2	1½	1½	....	......	......	SR-15A SR-15B SR-15C	SR-14A SR-14B SR-14C	**$54** **50** **54**
I	2	3	5	....	......	......	SR-17A SR-17B SR-17C	SR-16A SR-16B SR-16C	**59** **55** **59**
I	3	1½	3	3	5	7½	SR-19A SR-19B SR-19C	SR-18A SR-18B SR-18C	**57** **53** **57**
				For Separate Push Button Station					
II	3	3	7½	7½	15	25	TR-3	TR-2	**95**
III	3	7½	15	15	30	50	UR-3	UR-2	**141**

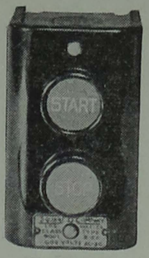
*Control stations included in price only when built in cover. Prices include Thermal Relays.

Ordering Instructions

1. Specify class number, type, horsepower, voltage, phase, cycles and full load current of motor.
2. Order thermal relays by relay number from table on catalog page following Square D Magnetic Starters.
3. Order suitable push button station from table in following column.
4. If special features are desired, order Class 8536 similar to type .... and state clearly the features required.

SQUARE D MOTOR CONTROL

PUSH BUTTON CONTROL STATIONS



Type B20
Class 9001

Momentary Contact
3-Wire Control

Max. Voltage, 600 A.C., 250 D.C.

BM1 Oil Immersed type is approved by Underwriters' Laboratories for Class I, Group D Hazardous Locations.

BR11 Explosion-proof type is approved by Underwriters' Laboratories for Class I, Group D and Class II, Group G Hazardous Locations.

Two Button Stations—Non-Reversing

Name Plate Marking—Start-Stop

Cat. No.	Type of Station	Dimens., Inches Wdth.	Dimens., Inches Hght.	Dimens., Inches Dpth.	Cond. Size	List Price
B20	Standard Duty	2½	4¼	2¾	½	**$2.00**
B21*	Standard Duty	2½	4¼	2⅛	½	**3.00**
BF13	Flush Mount.	2¾	4½	2¾	½	**4.00**
GA21	Heavy Duty	$3\frac{5}{16}$	6¼	2⅝	¾	**6.00**
GA26*	Heavy Duty	$3\frac{5}{16}$	6¼	2⅝	¾	**7.00**
BW22	Water and	3	4½	3½	½	**7.00**
BW13	Dust-	3	4½	4¼	½	**7.00**
GD21†	Tight	$3\frac{9}{16}$	$7\frac{5}{16}$	$3\frac{9}{16}$	¾	**12.00**
BM1	Oil Imm.	5⅛	7	5¼	½	**11.00**
BR11	Exp.-Proof	3½	6⅜	6¾	½	**11.00**

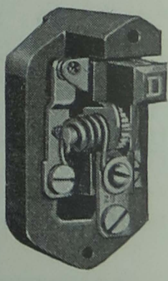
*Lockout type.

†Heavy duty type in Watertight Cast Aluminum enclosure.

SQUARE D REGULATORS

CLASS 9020 TYPE W10 KNOCKOUT OVERLOAD BREAKER

A compact unit designed for mounting in a ½-inch knockout. An opening for wiring is provided in the threaded boss which in turn is equipped with a washer and locknut for direct conduit box mounting. Each unit is complete with heater coil.



9020W10

This unit is provided with single pole double break silver to silver contacts and is completely enclosed in a bakelite case. Resetting is accomplished by means of a button extending through the cover. A red dot on the button indicates the tripped position of the breaker.

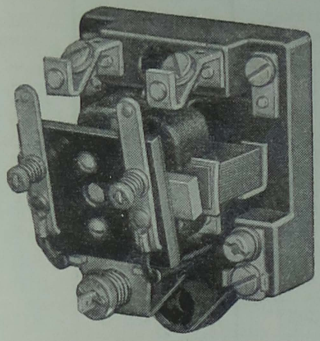
Electrical ratings: ¾ h.p., 110/220 volts A.C. Order by class and type; give horsepower, voltage, full load current and type of motor.

Price, Class **9020W10** K.O. Overload Breaker **$1.85**

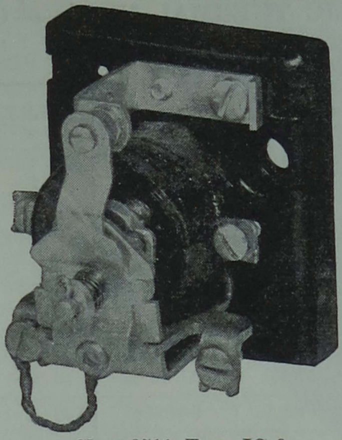
SQUARE D A.C. MAGNETIC RELAYS

CLASS 8511

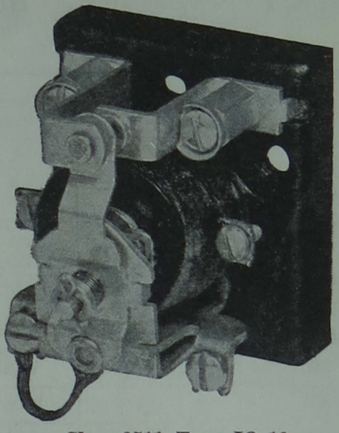
Single Pole or Double Pole—Normally Open or Double Throw
For Signal, Light, Time Clock, Thermostat, and Small Motor Control



Type K14



Class 8511, Type JO-9



Class 8511, Type JO-10

Type H — 25, 110, 220 Volts, 60 Cycle; 12, 25, 110 Volts, 25 Cycle

Type	Style*	Control	Amps.	H.P. Single Phase	List Price Open	List Price Enclosed
H11	S.P. S.T.	2-Wire Separate	15	½-110V. ¾-220V.	$4.00	$5.00
H13	S.P. S.T.	3-Wire Separate	10		5.00	6.00
H15	D.P. S.T.	2-Wire Separate	10		5.00	6.00
H18	S.P. D.T.	2-Wire Separate	3	* *	5.50	6.50
H20	D.P. D.T.	2-Wire Separate	3		7.00	8.00
H22	S.P. C.O.	2-Wire Separate	3		5.00	6.00
H24	D.P. C.O.	2-Wire Separate	3		6.00	7.00
H25	S.P. S.T.	3-Wire Thermo Separate	10	½-110V. ¾-220V.	6.50	7.50
H28	S.P. D.T.	3-Wire Thermo Separate	3	* *	7.50	8.50

Type K — 25, 110, 220, 440 Volts, 60 Cycle; 25, 110, 220 Volts, 25 Cycle

Type	Style*	Control	Amps.	H.P. Single Phase	List Price Open	List Price Enclosed
K11	S.P. S.T.	2-Wire Separate	15	1 -110V. 1½-220V.	$7.00	$8.00
K13	S.P. S.T.	3-Wire Separate	15		8.00	9.00
K15	D.P. S.T.	2-Wire Separate	15		8.00	9.00
K18	S.P. D.T.	2-Wire Separate	5	* *	8.00	9.00
K20	D.P. D.T.	2-Wire Separate	5		11.00	12.00
K22	S.P. C.O.	2-Wire Separate	5		7.00	8.00
K24	D.P. C.O.	2-Wire Separate	5		8.00	9.00
K30	S.P. S.T.	3-Wire Thermo Separate	15	1 -110V. 1½-220V.	9.00	10.00
K32	D.P. S.T.	3-Wire Thermo Separate	15		10.00	11.00

*S.P.—Single pole; S.T.—Single Throw; D.P.—Double Pole; D.T.—Double Throw; C.O.—Circuit Opening. **H.P. rating on application. Complete information as to duty, cycle and motor characteristics must be supplied.

Ordering Instructions

Order contactors by specifying class, type, single or double pole, single or double throw, 2-wire or 3-wire control, common or separate control, thermostat control if desired, voltage, cycles, and ampere or H.P. rating, open or enclosed type.

Ampere ratings as listed are for continuous duty, non-inductive load. When low power factor or high inrush current is expected, that information should be given when ordering.

Above prices do not include push button station.

Type J—Single Pole—Single or Double Throw—25, 110, 220 and 440 Volts, 50 and 60 Cycles

Type	Throw	Enclosure	List Price
JO-9	Single	Open	$2.50
JG-9	Single	Enclosed	3.00
JO-10	Double	Open	$3.00
JG-10	Double	Enclosed	3.50

Current Ratings:
Normally Open Contacts, 15 Amps., 110-220 V.
Normally Closed Contacts, 10 Amps., 110-220 V.
Max. H.P. Ratings:
½ H.P. Single Phase, 110 or 220 Volts.

Ordering Instructions

Order by Class and Type number. Specify voltage and cycles of operating coil.

TABLES FOR SELECTION OF THERMAL RELAY UNITS FOR 40° MOTORS OPERATING UNDER NORMAL CONDITIONS

TABLE 1 BI-METALLIC THERMAL UNITS — CLASS 8536

Size	Full Load Motor Current	Catalog Number	Full Load Motor Current	Catalog Number	Full Load Motor Current	Catalog Number	Full Load Motor Current	Catalog Number
I	0.73– 0.92 0.93– 1.25 1.26– 1.8	HST 1* HST 1½* HST 2*	1.81– 2.2 2.3 – 2.8 2.9 – 3.6	HST 2½* HST 3* HST 4*	3.7 – 4.6 4.7 – 5.8 5.9 – 7.2	HST 5* HST 6½* HST 8*	7.3 – 9.2 9.3 – 11.6 11.7 – 14.4 14.5 – 18.0	HST 10* HST 13* HST 16* HST 20*
II	0.73– 0.92 0.93– 1.25 1.26– 1.8 1.81– 2.2	HST 1* HST 1½* HST 2* HST 2½*	2.3 – 2.8 2.9 – 3.6 3.7 – 4.6 4.7 – 5.8	HST 3* HST 4* HST 5* HST 6½*	5.9 – 7.2 7.3 – 9.2 9.3 – 11.6 11.7 – 14.4	HST 8* HST10* HST13* HST16*	14.5 – 18.0 18.1 – 22.0 22.1 – 29.0 29.1 – 36.0 36.1 – 46.0	HST 20* T 25* T 32* T 40* T 50*
III	14.5 –18.0 18.1 –22.0	U 20* U 25*	22.1 – 29.0 29.1 – 36.0	U 32* U 40*	36.1 – 46.0 46.1 – 58.0	U 50* U 65*	58.1 – 72.0 72.1 – 86.0	U 80* U 95*
IV	58.1 –72.0	8080Z†	72.1 – 86.0	8095Z†	86.1 –108.0	8120Z†	108.1 –135.0	8150Z†
V	58.1 –72.0 72.1 –86.0	8080Z† 8095Z†	86.1 –108.0 108.1 –135.0	8120Z† 8150Z†	135.1 –171.0 171.1 –216.0	8190Z† 8240Z†	216.0 –270.0	8300Z†

TABLE 2 MELTING ALLOY THERMAL UNITS — CLASSES 2510 AND 8731

Full Load Motor Current	* Relay Number	Full Load Motor Current	* Relay Number	Full Load Motor Current	* Relay Number	Full Load Motor Current	* Relay Number
0.36– 0.40	B 0.44	1.08– 1.20	B 1.3	3.1 – 3.4	B 3.7	8.5 – 9.5	B 10.2
0.41– 0.46	B 0.50	1.21– 1.38	B 1.45	3.5 – 4.0	B 4.15	9.6 –10.5	B 11.5
0.47– 0.52	B 0.56	1.39– 1.56	B 1.67	4.1 – 4.5	B 4.85	10.6 –11.6	B 12.8
0.53– 0.58	B 0.63	1.57– 1.74	B 1.88	4.6 – 5.1	B 5.5	11.7 –12.9	B 14
0.59– 0.67	B 0.71	1.75– 1.9	B 2.1	5.2 – 5.7	B 6.2	13.0 –14.5	B 15.5
0.68– 0.76	B 0.82	2.0 – 2.1	B 2.4	5.8 – 6.3	B 6.9	14.6 –16.2	B 17.5
0.77– 0.85	B 0.92	2.2 – 2.4	B 2.65	6.4 – 6.7	B 7.7	16.3 –18.3	B 19.5
0.86– 0.95	B 1.03	2.5 – 2.7	B 3.0	6.8 – 7.5	B 8.2	18.4 –20	B 22
0.96– 1.07	B 1.15	2.8 – 3.0	B 3.3	7.6 – 8.4	B 9.1	21. –22	B 25

TABLE 3 MELTING ALLOY THERMAL UNITS — CLASSES 8536, 8538 AND 8736

Size	Full Load Motor Current	* Relay Number	Full Load Motor Current	* Relay Number	Full Load Motor Current	* Relay Number	Full Load Motor Current	* Relay Number	Full Load Motor Current	* Relay Number
0 & I	0.32– 0.36 0.37– 0.41 0.42– 0.46 0.47– 0.52 0.53– 0.59 0.60– 0.68 0.69– 0.76	B 0.44 B 0.50 B 0.56 B 0.63 B 0.71 B 0.82 B 0.92	0.77– 0.85 0.86– 0.95 0.96– 1.07 1.08– 1.19 1.20– 1.37 1.38– 1.54 1.55– 1.72	B 1.03 B 1.15 B 1.3 B 1.45 B 1.67 B 1.88 B 2.1	1.73– 1.97 1.98– 2.1 2.2 – 2.4 2.5 – 2.7 2.8 – 3.0 3.1 – 3.4 3.5 – 4.0	B 2.4 B 2.65 B 3.0 B 3.3 B 3.7 B 4.15 B 4.85	4.1 – 4.5 4.6 – 5.0 5.1 – 5.5 5.6 – 6.1 6.2 – 6.5 6.6 – 7.3 7.4 – 8.1 8.2 – 9.0	B 5.5 B 6.2 B 6.9 B 7.7 B 8.2 B 9.1 B 10.2 B 11.5	9.1 – 10.0 10.1 – 10.9 11.0 – 12.0 12.1 – 13.3 13.4 – 14.9 15.0 – 16.0 16.1 – 17.0 17.1 – 20.0	B 12.8 B 14.0 B 15.5 B 17.5 B 19.5 B 22.0 B 25.0 B 28.0
II	3.3 – 3.6 3.7 – 4.2 4.3 – 4.8 4.9 – 5.4 5.5 – 6.0	B 4.15 B 4.85 B 5.5 B 6.2 B 6.9	6.1 – 6.6 6.7 – 7.0 7.1 – 7.8 7.9 – 8.7 8.8 – 9.9	B 7.7 B 8.2 B 9.1 B 10.2 B 11.5	10.0 – 11.0 11.1 – 11.9 12.0 – 13.1 13.2 – 14.5 14.6 – 16.0	B 12.8 B 14.0 B 15.5 B 17.5 B 19.5	16.1 – 17.5 17.6 – 19.5 19.6 – 21.8 21.9 – 25.0 26.0 – 28.0	B 22.0 B 25.0 B 28.0 B 32. B 36.	29. – 31. 32. – 35. 36. – 39. 40. – 44.	B 40. B 45. B 50. B 56.
III	16. –17. 18. –20. 21. –23. 24. –26.	C 20. C 22. C 26. C 30.	27. –31. 32. –33. 34. –35. 36. –40.	C 34. C 40. C 42. C 45.	41. – 46. 47. – 52. 53. – 58. 59. – 64.	C 51. C 58. C 66. C 75.	65. – 68. 69. – 77. 78. – 85. 86. – 94. 95. –105.	C 83. C 90. C 103. C 114. C 130.		
IV	60. –66. 76. –74.	D 72. D 80.	75. –83. 84. –93.	D 90. D 100.	94. –104. 105. –112.	D 113. D 126.	113. –124. 125. –135.	D 135. D 150.		
V ‡	46. –51. 52. –57. 58. –63.	B 5.5 B 6.2 B 6.9	64. –67. 68. –75. 76. –84.	B 7.7 B 8.2 B 9.1	85. – 95. 96. –105. 106. –116.	B 10.2 B 11.5 B 12.8	117. –129. 130. –145. 146. –162.	B 14.0 B 15.5 B 17.5	163. –183. 184. –200. 210. –220. 230. –260.	B 19.5 B 22.0 B 25.0 B 28.

*Catalog or relay number covers one thermal unit.

†Catalog number covers a complete two-element relay.

‡Relays operate from secondary of a 10 to 1 current transformer

WESTINGHOUSE CAPACITORS

INERTEEN FILLED—TYPE FP FOR POWER FACTOR CORRECTION

While capacitors are generally used purely for power factor correction, they may often be used for voltage regulation. Capacitors supply corrective capacity to off-set the effect of reactive load that is almost always present in industrial loads. Capacitors, if applied properly and at load centers, raise the voltage at the motor terminals and improve the performance.

Often additional load may be added to a circuit already overloaded simply by correcting the power factor with a capacitor. The expense and delay of rewiring a plant may often be avoided by the proper installation of capacitors on the overloaded feeders.

Capacitor units and equipments are available in all ratings from ½ kv-a. to 1260 kv-a. for all the plant feeder voltages from 230 to 6900 volts inclusive; also up to 13800. The equipment consists of the required number of units together with the necessary accessories and frames.

The cabinet type units, ½ to 15 kv-a. are usually applied across motor terminals. Sometimes they are grouped in small banks. The enclosed dust-tight equipments are very serviceable in hazardous locations.

The Small Rack-Type designs are often used on long feeders, in small plants, and are sometimes grouped and connected in parallel to the bus at the switchboard.

The Large Rack-Type equipment may be used in smaller capacities in small plants on feeders or at the switchboard. The larger sizes are particularly adapted to applications in large plants where considerable capacity is desired at one point.

The Hanger Type is for outdoor pole or cross-arm mounting for distribution circuits.

The Pole Type capacitor is particularly well suited for outdoor installations where not more than 240 kv-a. corrective effect is desired and where the capacity may be left connected from day to day.

All Westinghouse type FP capacitor units are impregnated with the non-inflammable liquid Inerteen making capacitor equipments absolutely fireproof and requiring less floor space.

Distinctive Features

1. Non-inflammable and non-explosive capacitor units.
2. Welded cases of .05 sheet steel for capacitor units.
3. Hermetically sealed capacitor units.
4. Solderseal porcelain terminal bushings.
5. Welded frames. Sectional assemblies easily handled.
6. Boric acid fuses—individual indicating type. Mounted on terminals no fuse clips.
7. Completely enclosed circuit breaker.
8. Effective and safe discharge devices.
9. Flexible braided copper connections which avoid strain on terminals and loose connections where there is vibration.
10. Rugged terminal studs ½ inch diameter, 13 threads to the inch.
11. Ample creepage over porcelain terminals and external flashover according to standard accepted factor of safety for the service.
12. Low in height and smaller volume and floor space due to terminal mounted fuses.
13. Low losses. Guaranteed to be less than ⅓ of 1 per cent of the operating kv-a.

WESTINGHOUSE CAPACITORS

TYPE FP INERTEEN DUST-TIGHT TYPE

230, 460 or 575 Volts, 1, 2 or 3 Phase, 60 Cycles

This type of equipment consists of one of the standard Inerteen capacitor units enclosed in a sheet metal cabinet. The unit is provided with discharge resistors, but not fuses.

Knockouts for conduit connections are located at convenient places.

Kv-a.	V.	Dimens., In. Wdth.	Lgth.	Hght.	Price Each
2½	230	4⅜	15½	17	**$84.00**
5	230	4⅜	15½	22	**165.00**
7½	230	5¼	15½	22	**230.00**
5	460*	4⅜	15½	17	**84.00**
10	460*	4⅜	15½	20½	**165.00**
15	460*	4⅜	15½	22	**230.00**

*Also available for 575 volts.

Approximate shipping weights, 60 to 97 pounds. Smaller ratings are standard and available.

MULTIPLE ENCLOSED DUST-TIGHT EQUIPMENTS—INDOOR ONLY

230, 460 or 575 Volts, 3 Phase, 60 Cycles

Maximum Ambient Temperature: 230 Volts 50°C. (122°F.) 460-575 Volt 46.1°C. (115°F.—Single Tier Enclosures Only. 460-575 Volts 40°C. (104°F.)—2 and 3 Tier Equipments.

Complete assembly includes one multiple enclosure, complete with required number of individual capacitor units, fuses, connectors, discharge means and dust-tight terminal compartment.

Total price of complete equipment includes the necessary number of complete assemblies and conduit connections only for use between adjacent enclosures.

Kv-a. and V. Class		No. of Units	Dimensions, Inches					Price Each
			Width		Length			
230	460/575		Over-all	Mntg.	Over-all	Mntg.	Hght.	
15	30	2	22¾	10	15¾	14½	17	**$465.00**
30	60	4	22¾	10	27¾	26½	17	**930.00**
30	60	4	22¾	10	15¾	14½	34	**930.00**
45	90	6	22¾	10	39¾	38½	17	**1395.00**
45	90	6§	22¾	10	15¾	14½	51	**1395.00**
60	120	8	22¾	10	51¾	50½	17	**1860.00**
60	120	8	22¾	10	27¾	26½	34	**1860.00**
90	180	12	22¾	10	27¾	26½	51	**2790.00**
90	180	12§	22¾	10	39¾	38½	34	**2790.00**
120	240	16	22¾	10	51¾	50½	34	**3720.00**
135	270	18§	22¾	10	39¾	38½	51	**4185.00**
180	360	24§	22¾	10	51¾	50½	51	**5580.00**

†When equipments of intermediate ratings are desired, use the list price of the required number of units and add the list price for the next larger enclosure combination. Dust-tight covers will be supplied on the unused mountings and bus bars will be furnished for the ultimate capacity of the equipment.

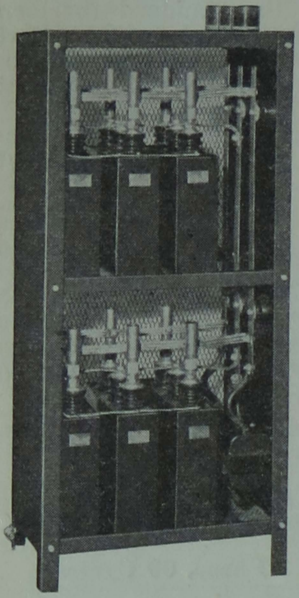
§Fused safety switches or AB-I breakers may be mounted on any 3 enclosure stack, at **$20** list additional for mounting details, plus price of switch or breaker.

‡Total price of complete equipment.

WESTINGHOUSE CAPACITORS

COMPLETE SMALL RACK TYPE CAPACITOR EQUIPMENT

230 to 13800 Volt Equipments — 60 Cycles



A complete equipment of this kind includes the proper number of 10 kv-a. and 5 kv-a. capacitor units with individual fuses and with a frame complete including connectors, ground leads, and discharge devices.

Primary fuse cutouts, power type boric acid fuses, or circuit breakers are all recommended for protection and switching, but are not included in the prices listed.

The price of the total equipment is shown in the tables below, except switching equipment.

Kv-a. and V.Class 230	460	Unit Cap.	Dimensions, Inches Overall Width★ 230	460	Price Each*
15†	30†	2	17⅞	17⅞	**$465.00**
15‡	30‡	2	--------	--------	**610.00**
30†	60†	4	18⅛	18⅛	**930.00**
30‡	60‡	4	21⅜	21⅜	**1095.00**
45†	90†	6	23¾	23¾	**1395.00**
45‡	90‡	6	27	27	**1580.00**
60†	120†	8	29⅜	29⅜	**1860.00**
60‡	120‡	8	32⅝	32⅝	**2060.00**
90†	180†	12	40⅝	40⅝	**2790.00**
90‡	180‡	12	43⅞	43⅞	**3030.00**
120†	240†	16	29⅜	29⅜	**3720.00**
135†	270†	18	26⅞	--------	**4185.00**
180†	360†	24	34	40⅝	**5580.00**

*Total list price except switching equipment.

†Indoor Type.

‡Outdoor Type.

★Width on outdoor type includes hood.

Higher voltages are available but not listed.

For low voltage use with these small rack-type capacitor equipments, we recommend type AB-I breakers or safety switches.

The AB-I breaker should be selected with 35 per cent capacity over the normal amount to be drawn by the capacitors. The safety switch should be selected with 50 per cent over capacity.

RACK-TYPE CAPACITOR UNITS—TYPE FP

1 and 3 Phase—230 to 4160 V., 60 Cycles

230 Volts Kv-a.	Phase	Cat. No.	460 Volts Kv-a.	Phase	Cat. No.	Price
5	1	**859310**	10	1	**859311**	**$155.00**
5	3	**1019640**	10	3	**1019643**	**155.00**
7½	1	**1014231**	15	1	**949182**	**215.00**
7½	3	**1019641**	15	3	**1019644**	**215.00**

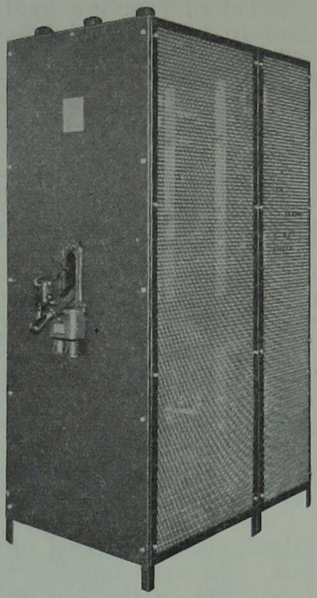
2400 Volts			4160 Volts			
10	1	**1176642**	10	1	**1176649**	**138.00**
10	3	**1176643**	10	3	**1176650**	**138.00**
15	1	**1176644**	15	1	**1176651**	**182.00**
15	3	**1176645**	15	3	**1176652**	**182.00**
*	..	**1176646**	----	--	------------	**182.00**

*Sectionalized.

WESTINGHOUSE CAPACITORS

LARGE RACK TYPE CAPACITOR EQUIPMENTS

230–13800 Volts — 60 Cycles



These equipments may be made for indoor service or outdoor service as desired. For indoor service, steel angle iron frames are covered by expanded metal side screens. For outdoor service, these are replaced by special ventilated side plates and a pitched weatherproof roof is provided.

In either case discharge devices, bus bars, connectors, individual fuses, and also a circuit breaker is standard equipment. The standard breaker is listed in the following table.

These breakers are chosen to have ample current carrying capacity for corresponding group equipment but they may not have the necessary interrupting capacity.

If a breaker of greater interrupting capacity is required the standard breaker should be omitted at the price listed and the required breaker added at the price listed. If no breaker is required it should be omitted at the price listed.

The following include full automatic breaker, current transformers (in case of Oil Breakers) and indoor circuit-breaker housing.

Three-Phase Capacitor Rating Volts	Kv-a.	Circuit Breaker Type	Breaker Rating Amps.	Volts	Short Time Rating in r.m.s. Amperes 1-Sec.	5-Sec.	Rated Interrupting Cap.*
230	135–180	DK-20	600	600	....	....	10000
230	181–270	DA-40	1000	600	....	....	40000
230	271–360	DA-40	1200	600	....	....	40000
230	361–540	DA-60	2000	600	....	....	60000
230	541–630	DA-66	2500	600	....	....	60000
460	270–360	DK-20	600	600	....	....	10000
460	361–540	DA-40	1000	600	....	....	40000
460	541–720	DA-40	1200	600	....	....	40000
460	721–1080	DA-60	2000	600	....	....	60000
460	1081–1260	DA-60	2500	600	....	....	60000
575	270–360	DK-20	600	600	....	....	10000
575	361–540	DA-40	800	600	....	....	40000
575	541–720	DA-40	1000	600	....	....	40000
575	721–1080	DA-40	1600	600	....	....	40000
575	1081–1260	DA-60	2000	600	....	....	60000
2400	720	F-11	400	5000	15000	10000	3600
2400	1260	F-122	600	7500	20000	20000	6500
4000	720	F-11	400	5000	15000	10000	2200
4000	1260	F-122	600	7500	20000	20000	3600
4600	1260	F-11	400	5000	15000	10000	1900
6900	1260	F-122	600	7500	20000	20000	2170

*At rated voltage of capacitor in r.m.s amperes.

Sizes not listed, prices on application.

For estimating prices of large rack type capacitor equipment, including frames, required number of units, discharge devices, internal connectors and full automatic circuit breaker with its current transformer, where required, and housing — see table on following page.

WESTINGHOUSE CAPACITORS

TYPE FP INERTEEN INDOOR LARGE FRAME TYPE CAPACITOR EQUIPMENT

1, 2 or 3-Phase, 60 Cycles

	230 Volt		460 Volt	
Kv-a.	Indoor	Outdoor	Indoor	Outdoor
180	**$ 6550**	**$ 7090**	**$........**	**$........**
270	**10080**	**10760**	**5180**	**5650**
360	**12940**	**13670**	**6550**	**7090**
540	**20165**	**21265**	**10080**	**10760**
630	**23060**	**24300**	....	....
720	....	....	**12940**	**13760**
1080	....	....	**20165**	**21265**
1260	....	....	**23060**	**24300**

	2400 Volts Delta		4160 Volts Delta	
Kv-a.	Indoor	Outdoor	Indoor	Outdoor
270	**$ 4686**	**$ 5186**	**$ 4806**	**$ 5346**
360	**5868**	**6448**	**5988**	**6608**
540	**8232**	**8962**	**8352**	**9122**
720	**10596**	**11476**	**10716**	**11636**
1080	**15564**	**16744**	**15684**	**16904**
1260	**17928**	**19258**	**18048**	**19418**

Information Desired for Application of Capacitors

The following indicated information will greatly help us to calculate each customer's needs quickly and satisfactorily.

1. Present load kw. or kw-hr.
2. Reactive kv-a. or kv-a-hr.
3. Present power factor.
4. Desired power factor.
5. Actual average voltage in your plant.
6. Maximum sustained voltage for periods as long as one-half hour.
7. Frequency and number of phases.
8. Rating of power transformers.
9. Location of plant. (a) Near the end of a long feeder. (b) Near the center of an industrial district.
10. Contemplated increase over the present load.
11. Machines, such as compressors, in the plant to which synchronous motors can be properly applied.
12. Hours per day of plant operation at normal capacity.
13. Load conditions during the night.
14. Extent of seasonal changes in the load.
15. Approximate short-circuit current possible at the point where the capacitor is to be connected.

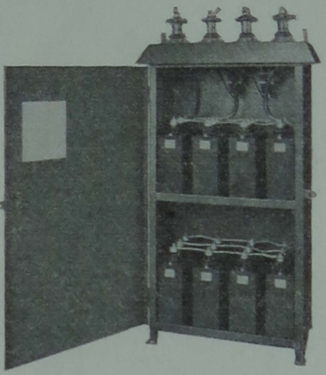
We maintain an Engineering Department as part of our service, whose duty it is to give you every possible assistance.

WESTINGHOUSE CAPACITORS

INERTEEN FILLED — TYPE FP FOR POWER FACTOR CORRECTION

POLE TYPE CAPACITORS

2400 to 13800 V., 1, 2 and 3 Phase, 60 Cycles



The equipments consist of the required number of capacitor units and fuses assembled in a steel weatherproof outdoor housing having discharge devices, flexible braided, internal connectors, hanger irons, lifting eyes and roof bushings. Primary fused cutouts, complete with fuse links, are furnished when specified—at slight extra cost.

Dimensions and Weights

				Roof	Dimensions, Inches			
Maximum		(*)		Bush-	Length			Unit
Kv-a.	Units	Voltage	Ph.	ings	Hood	Mntg.	Dpth.	Wdth.
30	2	2400–4160	3	3	----	----	----	----
30	2	4800	△	3	----	----	----	----
60	4	2400–4160	3	3	34	28	23¼	10
60	4	4800	△	3	34	28	23¼	10
120	8	2400–4160	3	3	34	28	23¼	10
120	8	4800	△	3	34	28	23¼	10
180	12	2400–4160	3	3	48¼	42¼	23¼	15
180	12	4800	△	3	48¼	42¼	23¼	15
60	4	4160	3	4	34	28	23¼	10
60	4	4160	★	4	34	28	23¼	10
120	8	4160	3	4	34	28	23¼	10
120	8	4160	★	4	34	28	23¼	10
180	12	4160	3	4	48¼	42¼	23¼	15
180	12	4160	★	4	48¼	42¼	23¼	15

*Higher voltages available but not listed over 4160 volts. △Delta. ★Star.

Complete Pole Type Capacitor Equipments

Kv-a.	Unit Cap.	Shpg. Wt.	Without Fuses	Individual Fuses	Without Fuses	Individual Fuses
			2400 V. Delta		**2400/4160 V. Star**	
15	1	......	....	....	....	....
30	2	......	**$554.00**	**$10.00**	**$654.00**	**$10.00**
60	4	600	**963.00**	**20.00**	**1063.00**	**20.00**
120	8	1050	**1781.00**	**40.00**	**1881.00**	**40.00**
180	12	1450	**2594.00**	**60.00**	**2694.00**	**60.00**
			4160 V. Delta		**4800 V. Delta**	
15	1	......	....	....	....	....
30	2	......	**654.00**	**10.00**	**730.00**	**10.00**
60	4	600	**1063.00**	**20.00**	**1215.00**	**20.00**
120	8	1050	**1881.00**	**40.00**	**2185.00**	**40.00**
180	12	1450	**2694.00**	**60.00**	**3150.00**	**60.00**
			7200 and 7960 Volts Delta		**7200/12470 7960/13800 Star**	
90	6	......	**2040.00**	**30.00**	**2170.00**	....
180	12	......	**3530.00**	**60.00**	**3660.00**	....
			12470/13800 Volts Delta			
90	6	......	**2620.00**	....	....	....
180	12	......	**4560.00**	....	....	....

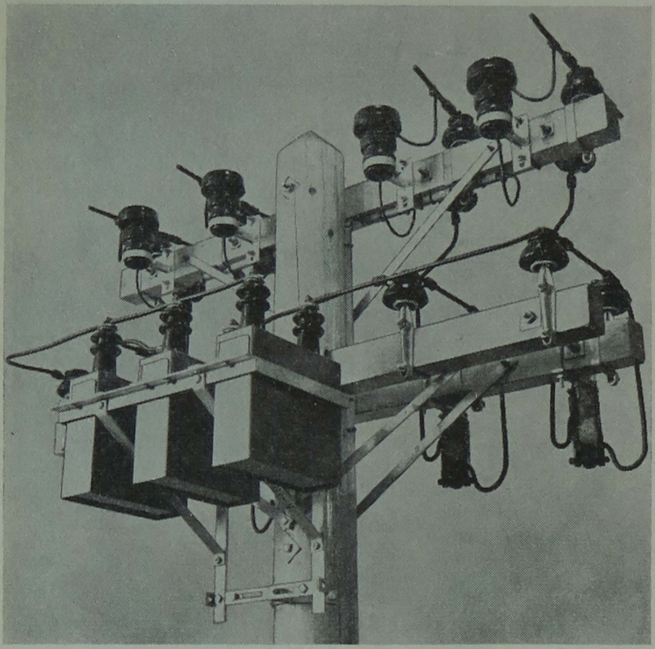
WESTINGHOUSE CAPACITORS

INERTEEN FILLED — TYPE FP FOR POWER FACTOR CORRECTION

HANGER UNITS WITH FLANGES

For Mounting in Brackets Listed Below

460 to 13800 Volts — 60 Cycles



Catalog numbers and list prices of the units include 2 outdoor bushings with solderless connectors on single-phase units and 3 outdoor bushings with solderles connectors on 3-phase units; galvanized mounted flanges bolted on, ready for assembly in racks or single unit bracket; and internal discharge resistors. Mounting brackets or fuse cutouts are not included.

Catalog numbers and prices of single and two unit bracket include two U-bolts for holding the bracket in place; multiple unit rack includes bolts for bolting units in place, hanger irons and all details for bolting hanger irons to racks.

		Single Phase Units		3-Phase Units	
Kv-a.	Volts	Net Wt. Lbs.	Price Each	Net Wt. Lbs.	Price Each
2½	230	47.5	**$ 95.00**	48	**$ 95.00**
5	230	64.5	**165.00**	65	**165.00**
7½	230	70.5	**230.00**	71	**230.00**
5	460	47.5	**95.00**	48	**95.00**
10	460	64.5	**165.00**	65	**165.00**
15	460	70.5	**230.00**	71	**230.00**
5	575	47.5	**95.00**	48	**95.00**
10	575	64.5	**165.00**	65	**165.00**
15	575	70.5	**230.00**	71	**230.00**
10	2400	52	**148.00**	70	**178.00**
15	2400	67	**192.00**	85	**222.00**
10	4160	52	**148.00**	70	**178.00**
15	4160	67	**192.00**	85	**222.00**
15	4800	79	**238.00**	85	**275.00**
15	7200	79	**238.00**	85	**275.00**
15	7960	79	**238.00**	85	**275.00**
15	12470	115	**320.00**	----	----------
15	13800	115	**320.00**	----	----------

Brackets for Mounting Hanger Type Units

Cat. No.	Description	Net Wt. Lbs.	Price Each
1019426	1 Unit Bracket	11	**$ 5.00**
....	2 Unit Brackets	11	**10.00**
1019425	4 Unit Brackets	38.5	**14.00**
1124284	4 Unit Brackets	45	**14.00**
1114937	Insulating cover for terminals		**.60**

POWER-FACTOR IMPROVEMENT

The figures below × kilowatt input = kv-a. required to improve from one power-factor to another.

Original Power-factor	Desired Power-factor				
%	100%	95%	90%	85%	80%
20	4.899	4.570	4.415	4.279	4.149
21	4.656	4.327	4.171	4.036	3.906
22	4.433	4.104	3.949	3.813	3.683
23	4.231	3.902	3.747	3.611	3.481
24	4.045	3.716	3.561	3.425	3.295
25	3.873	3.544	3.389	3.253	3.123
26	3.714	3.385	3.229	3.094	2.964
27	3.566	3.238	3.082	2.946	2.816
28	3.429	3.100	2.944	2.809	2.679
29	3.300	2.971	2.816	2.680	2.550
30	3.180	2.851	2.696	2.560	2.430
31	3.067	2.738	2.583	2.447	2.317
32	2.961	2.632	2.476	2.341	2.211
33	2.861	2.532	2.376	2.241	2.111
34	2.766	2.437	2.282	2.146	2.016
35	2.676	2.347	2.192	2.056	1.926
36	2.592	2.263	2.107	1.972	1.842
37	2.511	2.182	2.027	1.891	1.761
38	2.434	2.105	1.950	1.814	1.684
39	2.361	2.032	1.877	1.741	1.611
40	2.291	1.963	1.807	1.671	1.541
41	2.225	1.896	1.740	1.605	1.475
42	2.161	1.832	1.676	1.541	1.410
43	2.100	1.771	1.615	1.480	1.349
44	2.041	1.712	1.557	1.421	1.291
45	1.985	1.656	1.501	1.365	1.235
46	1.930	1.602	1.446	1.310	1.180
47	1.877	1.548	1.392	1.257	1.128
48	1.828	1.499	1.343	1.208	1.077
49	1.779	1.450	1.295	1.159	1.029
50	1.732	1.403	1.248	1.112	.982
51	1.687	1.358	1.202	1.067	.936
52	1.643	1.314	1.158	1.023	.892
53	1.600	1.271	1.116	.980	.850
54	1.559	1.230	1.074	.939	.808
55	1.518	1.189	1.034	.898	.768
56	1.497	1.150	.995	.859	.729
57	1.442	1.113	.957	.822	.691
58	1.405	1.076	.920	.785	.654
59	1.368	1.040	.884	.748	.618
60	1.333	1.004	.849	.713	.583
61	1.299	.970	.815	.679	.549
62	1.266	.937	.781	.646	.515
63	1.233	.904	.748	.613	.482
64	1.201	.872	.716	.581	.450
65	1.169	.840	.685	.549	.419
66	1.138	.810	.654	.518	.388
67	1.108	.779	.624	.488	.358
68	1.078	.750	.594	.458	.328
69	1.049	.720	.565	.429	.298
70	1.020	.691	.536	.400	.270
71	.992	.663	.507	.372	.241
72	.964	.635	.480	.344	.214
73	.936	.608	.452	.316	.186
74	.909	.580	.425	.289	.158
75	.882	.553	.398	.262	.132
76	.855	.527	.371	.235	.105
77	.829	.500	.344	.209	.078
78	.802	.474	.318	.182	.052
79	.776	.447	.292	.156	.026
80	.750	.421	.266	.130	
81	.724	.395	.240	.104	
82	.698	.369	.214	.078	
83	.672	.343	.188	.052	
84	.646	.317	.162	.026	
85	.620	.291	.136		
86	.593	.265	.109		
87	.567	.238	.082		
88	.540	.211	.056		
89	.512	.183	.028		
90	.484	.155			
91	.456	.127			
92	.426	.097			
93	.395	.066			
94	.363	.034			
95	.329				
96	.292				
97	.251				
98	.203				
99	.142				
100					

Example: Total kw. input of plant from wattmeter reading 100 kw. at a power-factor of 60 per cent. The kv-a. of the capacitor necessary to raise the power-factor to 80 per cent is found by multiplying the 100 kw. by the factor found in the table which is 0.58. 100 kw. × 0.58 = 58 kv-a. in capacitor capacity. The nearest standard size, of course, is 60 kv-a. and this should be recommended.

WESTINGHOUSE CAPACITORS

PERFORMANCE DATA ON OPEN TYPE CS SQUIRREL-CAGE MOTORS*

General Purpose and Linestart

Class I—220 Volts—3 Phase—60 Cycles

Hp.	Approx. Full Load Speed	Frame	Current (Amps.†) Full Load	Current (Amps.†) Locked Rotor	Power Factor ½ Load	Power Factor ¾ Load	Power Factor 4/4 Load
½	825	204	2.11	8.1	46	60	69
¾	1145	204	2.81	15.3	49	63	71
	860	224	3.27	12	48	58	65
1	1720	204	3.31	22	60	71	78
	1145	204	3.40	19	57	69	76
	860	225	3.54	19	55	64	70
1½	3420	204	4.99	27	68	78	83
	1735	224	4.40	30	76	83	87
	1125	224	5.10	30	54	66	73
	860	254	6.16	28	45	57	66
2	3500	224	6.01	35	68	79	84
	1700	225	5.70	35	71	81	86
	1130	225	6.62	37	56	68	75
	860	254	7.80	31	47	59	67
3	3450	224	9.03	54	68	79	84
	1690	225	8.75	52	70	80	84
	1135	254	9.32	46	64	74	80
	875	284	10.1	45	58	68	74.5
5	3420	225	13.2	76	81	89	90
	1735	354	13.4	86	76	84	87
	1135	284	15.4	86	71	78	82
	875	324	15.3	86	64	74	79
7½	3470	254	20.5	100	78	84	87
	1740	284	20.1	115	82	86	87
	1160	324	20.6	115	74	82	86
	865	326	21.4	118	70	80	83
10	3500	284	26.2	141	82	86	89
	1740	324	26.2	141	81	87	88
	1155	326	26.5	146	77	86	88
	875	365	29.1	146	62	73	78
15	3500	324	39.0	200	83	87	89
	1750	326	38.8	197	83	88	89
	1165	365	39.8	195	72	81	85
	875	404	42.2	210	65	76	81
20	3475	326	54.1	230	83	85	86
	1740	364	52.2	250	85	88	89
	1165	404	52.8	260	74	82	85
	880	405	54.8	260	70	80	83
25	3510	364-S	67.4	304	79	83	84
	1745	365	60.5	330	84	89	90.5
	1165	405	65.6	314	77	85	87
	880	444	67.0	330	74	81	85
30	3540	365-S	74.3	398	79	84	87
	1735	405	76.0	360	86	88	90
	1175	444	78.6	415	76	84	87
	880	445	78.0	380	77	84.5	87.5
40	3510	404-S	104	520	84	85	85.5
	1760	444	98	560	86	88.5	89.5
	1170	445	103	540	78	85.5	87.5
	880	504	108	530	71	80	82.5
50	3510	405-S	124	760	81	86.5	87
	1750	445-S	124	660	88	89	90
	1175	504	126	750	80	85	87
	880	505	133	750	68	78	82.5
60	3515	444-S	152	725	88	88	87
	1775	504	147	880	82	86	88.5
	1175	505	152	760	78	82	86
	880	607	158	825	71	78	83

*Horizontal sleeve or ball bearing; also open normal thrust, vertical solid shaft motors.

†Ampere rating is for 3 phase 220 volts; for 110 volts double the amperes given for the 220 volts and for 440 volts use ½ the amperes given for the 220 volts. The performance for 3 phase 550 volt motors is approximately the same as that shown for 220 volts except current is 40% of 220 volt current.

WESTINGHOUSE CAPACITORS

PERFORMANCE DATA ON OPEN TYPE CS SQUIRREL-CAGE MOTORS*

General Purpose and Linestart

Class I—220 Volts—3 Phase—60 Cycles (Continued)

Hp.	Approx. Full Load Speed	Frame	Current (Amps.†) Full Load	Current (Amps.†) Locked Rotor	Power Factor ½ Load	Power Factor ¾ Load	Power Factor 4/4 Load
75	3510	445-S	185	1140	87	88.5	88.5
	1775	505	182	1180	82	87	89
	1180	607	182	1180	80	86	89
	870	752-C	184	1020	80	87	89
100	3540	504-S	242	1440	78	86	90
	1780	607-S	238	1500	85	89.5	90.5
	1175°	752-S	238	1900	83	89	91
	870	754-C	248	1420	77	86	89
125	3530	505-S	291	1830	85	88	90
	1775	761-S	295	1630	85	90	91
	1160	752-S	302	1260	85	89	90
	875	774-C	297	1700	83	89	91
150	3525	607-S	362	1900	82	87	88
	1765°	771.1-S	348	2500	85	90	92
	1175°	772-S	348	2600	85	90	92
	870	854-S	358	2100	82	88	90
200	3575	607-S	486	2680	83	86.5	88
	1770	855-S	463	3600	91	93	94
	1165°	871-S	466	3960	85	90.5	92
	880°	874-S	464	3600	83	89.5	92
	2200 Volts, 3 Phase, 60 Cycles‡						
30	3515	444-S	8.0	35	84	86.5	86.5
	1170	444	8.6	40	62	73	78
	885	445	9.2	48	50	65	73
40	3550	444-S	10.5	65	80	85	86
	1770	444	10.7	45	68	77	81
	1175	445	12.1	46	58	68	72
	880	504	11.0	54	67	78	82
50	3530	444-S	13.1	66	81	86	86.5
	1750	445-S	14.2	66	67	78	83
	1170	504	13.0	77	77	83	86
	--------	505	------	----	----	----	----
60	3510	504-S	16.6	90	70	77.5	82
	1770	504-S	14.8	83	87	88	88
	--------	505	------	----	----	----	----
	875	752-C	15.5	73	73	83	86.5
75	3510	504-S	19.8	95	78	84	86
	--------	505	------	----	----	----	----
	--------	607	------	----	----	----	----
	860	762-C	18.6	100	79	87	89.5
100	3520	504-S	25.0	120	80	87	89
	--------	607-S	------	----	----	----	----
	1170°	760-S	24.2	180	77	87	90
	865	774-C	23.8	125	85	89	91
125	3530	505-S	31.1	165	80	87	89
	1740	761-S	30.6	160	83	88.5	90
	1170	760-S	30.4	140	84	88	90
	880	856-C	30.8	170	80	86	88
150	3540	607-S	35.6	170	82	88	90
	1770°	771.1-S	35.6	275	86	90	91
	1175°	772-S	36.8	320	74	84	88
	875°	870-S	36.0	290	78	86	90
200	3535	609-S	48.0	240	80	85	88
	1765°	871-S	46.1	355	90	92	94
	1175°	873-S	45.8	365	84	90	92
	880	876-S	51.2	240	75	82	84

*Horizontal sleeve or ball bearing; also open normal thrust vertical solid shaft motors.

†Ampere rating is for 3 phase 220 volts; for 110 volts double the amperes given for the 220 volts and for 440 volts use ½ the amperes given for the 220 volts. The performance for 3 phase 550 volt motors is approximately the same as that shown for 220 volts except current is 40% of 220 volt current. ‡Amp. rating is for 3 phase, 220 volts.

°Motors good for full voltage starting.

WESTINGHOUSE CAPACITORS

PERFORMANCE DATA ON OPEN TYPE CS SQUIRREL-CAGE MOTORS

Linestart Class II—220 Volts

3 Phase—60 Cycles

Hp.	Approx. Full Load Speed	Frame	Current (Amps.*)		Power Factor		
			Full Load	Locked Rotor	½ Load	¾ Load	4/4 Load
3	1690	225	8.35	52	73	84	88
	1155	254	10.50	61	48	61	69
	880	284	11.35	60	43	55	64
5	1740	254	13.65	90	68	80	85
	1155	284	15.00	89	60	70	77
	870	324	17.00	80	49	64	71
7½	1725	284	20.40	120	78	84	86
	1160	324	22	110	65	77	82
	870	326	24.50	110	58	68	73
10	1745	324	27.00	145	78	84	86
	1160	326	28.10	140	73	82	85
	870	365	31.90	150	59	69	74
15	1750	326	39.8	206	81	85	86
	1145	365	43.2	190	71	79	83
	870	404	48.7	197	57	67	71
20	1730	364	55.0	230	78	82	85
	1165	404	55.6	265	72	80	82
	870	405	62.4	255	58	68	73
25	1740	365	63.4	360	81	86	87.5
	1160	405	68.6	310	76	81	83
	870	444	71.2	310	74	80	82
30	1720	405	81.9	350	80	81	82
	1165	444	83.4	380	75	80	82
	870	445	84.4	400	71	78	82
40	1745	444	103.5	550	85	87	88
	1165	445	112.4	555	72	80	82
	880	504	121.2	530	63	72	76
50	1765	445	130.1	690	75	81	82.5
	1175	504	130.8	610	75	82	86
	875	505	177.7	580	67	76	77
60	1760	504	152.5	850	84	87	88
	1160	505	159.7	720	83	86	87
	880	607	173	800	66	75	78
75	1765	505-S	190.6	820	85	88	89
	1175	607	195.2	980	80	84	85
	875	762-C	207	880	74	80.5	81
100	1775	607-S	245.5	1500	86	89	90
	1175	760-C	262.8	1200	72	79	81
	875	762-C	262	1160	77	82	83
125	1770	771.1-S	306	1500	85	87.5	88
	1175	764-C	322.1	1550	75	82	84
	875	774-C	332	1750	78	81	82
150	1770	771.1-S	380	1800	84	87	87
	1175	772-C	386.4	2200	73	81	84
	880	856-C	-------	-------	----	-----	-----

2200 Volts—3 Phase—60 Cycles

Hp.	Approx. Full Load Speed	Frame	Full Load	Locked Rotor	½ Load	¾ Load	4/4 Load
30	1730	445	†	†	†	†	†
	1190	504	8.23	37	76	82	84
	880	504	9.00	38	64	73.5	77
40	1730	445	†	†	†	†	†
	1175	504	10.86	53	78	84	86
	875	505	†	†	†	†	†
50	1770	504-S	12.91	60	84	87.5	88
	1175	505	13.46	62	78	83	85
	880	607	14.47	64	68	76	79
60	‡	‡	‡	‡	‡	‡	‡
75	1770	505-S	18.85	95	81	87	88
	1175	760-C	19.28	90	78	84	86
	875	762-C	20.49	83	75	80	81
100	1770	761-S	24.9	120	83	87	86.5
	1180	760-C	25.15	125	78	85	86
	885	854-C	26.2	153	69	78	83
125	1775	771-S	†	†	†	†	†
	1175	764-C	32.2	155	75	82	84
	880	870-C	†	†	†	†	†

†New. *See Footnote in next column.
‡No 60 hp., 2200 volt developed.

WESTINGHOUSE CAPACITORS

PERFORMANCE DATA ON TYPE CS SQUIRREL-CAGE MOTORS

Standard Fan-Cooled and Explosion-Proof Ball or Roller Bearings

60 Cycles—220 Volts—3 Phase

Hp.	Approx. Full Load Speed	Frame	Current (Amps.*)		Power Factor		
			Full Load	Locked Rotor	½ Load	¾ Load	4/4 Load
½	860	204	2.2	12	45	56	65
¾	1155	204	2.6	18	49	63	71
	860	224	3.2	12	48	58	65
1	1750	204	3.2	28	55	68	76
	1150	204	3.4	19	57	69	76
	870	225	3.9	18	44	45	64
1½	3500	224	4.0	28	70	81	90
	1735	224	4.6	36	64	76	81
	1140	225	4.9	32	56	68	76
	870	254	6.5	32	40	55.5	60
2	3500	224	6.1	36	68	79	84
	1700	225	5.7	36	71	81	86
	1135	225	6.9	42	48	61	70
	855	254	7.3	34	50	61	68
3	3460	224	9.0	52	70	79	84
	1715	225	8.5	60	70	80	85
	1150	254	9.3	45	64	73	77
	875	284	9.8	42	50	68	74
5	3425	225	13	74	82	90	91
	1735	254	14	84	76	83	86
	1145	284	16	80	62	72	76
	875	324	15	80	62	74	79
7½	3440	254	20	130	80	86	88
	1730	284	21	115	83	86	87
	1165	324	20	115	77	84	87.5
	875	326	21	118	63	76	80
10	3490	284	27	156	80	86	88
	1745	324	26	143	82	88	89
	1160	326	26	150	80	86	87
	880	365	29	145	64	73	78
15	3520	324	38	230	82	86	88
	1740	326	37.8	225	80	87	88
	1170	365	38	200	81	85	87
	880	404	44	200	68	76	80
20	3510	326	50	315	84	87	88.5
	1760	364	52	315	77	84	87
	1155	404	52	260	78	84	87
	880	405	55	260	69	78	82.5
25	3540	365-S	62	414	81	85	87
	1760	365	64	340	78	83.5	86.5
	1170	405	66	325	76	83.5	84.5
	880	444	65	310	75	83	85.5
30	3490	404-S	79	390	87	88	87
	1740	405	79	390	83	85	86
	1170	444	76	370	80	86	86.5
	885	445	79	420	72	80	85
40	3520	405-S	98	520	88	89	89
	1765	444	102	560	81	86	87
	1175	445	103	600	74	82	85
	875	504	97	550	84	89	90
50	3545	444-S	121	760	84	89	90
	1765	445-S	126	760	83	87	87.5
	1180	504	131	760	74	82	85
	875	505	125	730	73	82	86.5
60	3535	445-S	148	880	79	86	87
	1765	504-S	152	930	77	83	86
	1175	505	152	780	80	86	87
	880	607	146	1080	75	83	88
75	3535	505-S	182	1200	71	85	87.5
	1765	505-S	181	1050	83	87	88
	1175	750-C	193	800	71	82	85
	875	754-C	190	1150	69	80	85.5

*Ampere rating is for 3 phase 220 volts; for 110 volts double the amperes given for the 220 volts and for 440 volts use ½ the amperes given for the 220 volts. The performance for 3 phase 550 volt motors is approximately the same as that shown for 220 volts except current is 40% of 220 volt current.

WESTINGHOUSE CAPACITORS

PERFORMANCE DATA ON TYPE CS SQUIRREL-CAGE MOTORS

Standard Fan-Cooled and Explosion-Proof Ball or Roller Bearings

60 Cycles—220 Volts—3 Phase

			Current (Amps.*)		Power Factor		
Hp.	Approx. Full Load Speed	Frame	Full Load	Locked Rotor	½ Load	¾ Load	4/4 Load
100	3540	607-S	235	1500	83	89	90.5
	1775	753-S	237	1500	85	89	89.5
	1170	770-S	248	1300	84	88	88
	875	772-C	244	1700	73	83	88
125	3570	753.6-H	300	1700	81	87	88
	1770	775-S	303	1700	89	90	91
	1185	857-S	298	1650	82	87	88.5
	880	876-C	310	1800	84	88	89
150	3575	773.6-H	350	2300	82	87	89
	1780	775-S	346	2660	88	90	91
	1180	875-S	358	2400	80	86	88.5
	885	876-C	364	2500	76	86	88.0
200	3570	8120-H	443	3200	91	92	93
	1775	875-S	470	3000	87	89	90
250	3560	8120-H	577	3500	82	88	90
	1780	8120-S	584	3800	84	88.5	90

60 Cycles—2200 Volts—3 Phase

40	3545	445-S	10.5	60	81	84	85
	1770	445-S	10.9	64	64	77	81.5
50	3530	504-S	13.1	74	78	84	87
	1765	504-S	12.9	76	78	84	86
	1180	505	13.1	70	70	79	83
60	3530	505-S	15	89	80	86	89
	1760	505-S	15.8	78	83	87	87
	1175	607	15.7	78	70	78	82
	880	756-C	15.6	120	67	78	84
75	3540	607-S	18.6	130	80	86	88.5
	1760	607-S	18.9	100	83	86	87
	1175	750-C	19.1	140	71	81	86
100	3570	753.6-H	25.2	165	71	81	84
	1775	755-S	23.3	155	87	90.5	91
	1180	776-S	24.5	160	76	84	87.5
	880	876-C	25	140	85	88	88.5
125	3570	771.6-H	30.3	200	78	85	88
	1780	775-S	29	205	90	91	91.5
	1185	857-S	30.5	230	77	85	87
	880	876-C	31.9	250	72	79	84
150	3575	871.26	36.5	340	72	82	36.5
	1780	857-S	35.9	300	81	87	89
	‡	857-S	‡	‡	‡	‡	‡
	885	876-C	37	260	76	83	86
200	3560	8120-H	47.2	260	85	88	89
	1775	8120-S	47.7	285	87	88	89
	1185	8120-S	46.2	320	84	89	90.5
	885	8120-C	47.5	285	81	87	88
250	3565	8120-H	56.8	350	84	90	91
	1775	8120-S	58	380	85	89	90.5
300	3570	8120-H	70.8	475	79	86	88

*Ampere rating is for 3 phase 220 volts; for 440 volts use ½ the amperes given for the 220 volts. The performance for 3 phase 550 volt motors is approximately the same as that shown for 220 volts except current is 40% of 220 volt current.

‡Not designed.

WESTINGHOUSE CAPACITORS

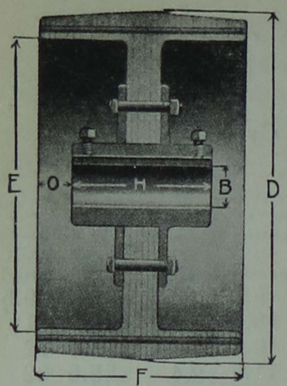
PERFORMANCE DATA ON TYPE CW WOUND-ROTOR MOTORS

3 Phase—60 Cycles

			Current (Amps.*)		Power Factor 220/440 Volts		
Hp.	Frame	Poles	Approx. Full Load Rpm.	Amperes Per Terminal	½ Load	¾ Load	Full Load
2	W-254	8	844	8.3	40	52	60.5
3	W-254	6	1110	10.3	50	63	71
3	W-284	8	853	9.95	52.5	64.5	72
3	W-326	10	682	11.7	44	55.5	62
3	W-365	12	561	12.6	40	52	59
5	W-254	4	1695	14.3	72.5	80	82.5
5	W-284	6	1125	15.8	57.5	68	74
5	W-324	8	864	16.8	49	61	69
5	W-365	10	695	20	40	51	59
5	WR-404	12	576	18.50	45	57	63
7½	W-284	4	1704	20.3	78	83	84.5
7½	W-324	6	1141	21.85	65	75	81
7½	W-326	8	868	23.85	49	63	71.0
7½	WR-404	10	700	25.6	47	59	67
7½	WR-405	12	572	30.8	39	50	58
10	W-324	4	1745	26.65	69	79	83
10	W-326	6	1147	28.55	62	75	80.5
10	W-365	8	850	29.6	62.5	73	78
10	WR-405	10	695	32.1	51	63	70
15	W-326	4	1740	38.1	77	84	87
15	W-365	6	1147	41.4	60	74	81
15	WR-404	8	860	44	58	70	76.5
15	W-444	10	676	47	55.5	68	73.5
15	W-445	12	565	51.5	46.5	59.5	66.5
20	W-364	4	1740	50.6	73	83	87
20	WR-404	6	1162	52.5	75	82.5	84
20	WR-405	8	872	54.4	66	76.5	81
20	WR-445	10	695	58.8	57.5	69	74.5
20	W-504	12	585	67	46	58	65
25	W-365	4	1742	62.9	75	83.5	87
25	WR-405	6	1169	67.4	66.5	76	80.5
25	WR-444	8	861	66.6	72	80	82.5
25	W-504	10	698	78	----	----	71
25	W-505	12	577	76.8	52	64	71
30	W-405	4	1722	74.2	81	87	89
30	W-444	6	1156	78.6	77	83	84
30	WR-445	8	868	80.6	70	78	80.5
30	W-505	10	700	89.6	54	66	73
40	W-444	4	1763	96	80	86	89
40	WR-445	6	1162	103.8	78.5	83	83
40	W-504	8	862	112.5	58	71	77
40	WL-607	10	689	110.8	62	73.5	79
50	W-445	4	1760	118.4	84	89	90
50	W-504	6	1143	125.6	78	84	86
50	W-505	8	865	156	48	60	69
60	W-504	4	1753	139.5	88	92	93
60	W-505	6	1162	146	79	85.5	88
60	WL-607	8	869	150.8	74	82	85
75	W-505	4	1755	178.5	87	88.5	88.5
75	WL-607	6	1161	181.25	82.5	87	89
100	WL-607	4	1758	233	88	90.5	89.5

*Ampere rating is for 220 volts; for 110 volts double the amperes given, and for 440 volts use ½ the amperes given for the 220 volts. Where only one voltage is given, amperes given applies to voltage listed.

ROCKWOOD PAPER PULLEYS



For use on motors, generators, board drop hammers and all high grade belted machinery. Should be used where the highest belt efficiency is to be maintained.

The high coefficient of friction of Rockwood Paper Pulleys may be taken advantage of in one or all of four ways, depending on the conditions of service. First, reduced slippage. Second, decreased belt tension. Third, more power transmitted. Fourth, lower total costs of pulleys and belting.

Rockwood Paper Pulleys will transmit more power than any other pulley. There will be less belt slip, less wear, and lower pulley costs. All the power a belt will carry will be transmitted—the belt is the limit—not the Rockwood Paper Pulley. They are lighter, non-breakable, and have a lower freight classification.

LARGE STOCK

1160 sizes of Rockwood Paper Pulleys from 1½ to 14 inch diameters, and in a wide range of popular bore sizes, are carried in stock. Now you can get the pulley you ought to have and you can get it when you want it. In addition to immediate deliveries, the use of stock pulleys results in a substantial saving in cost.

Bores of stock pulleys vary by 1/16ths in sizes up to 2 inches; above 2 inches by ⅛ths. We do not rebore stock pulleys but we can quickly make up special pulleys 72 inches in diameter and under of any face widths desired and to fit other shaft sizes.

Keyseats in the stock pulleys are as follows:

Dimensions, Inches			
Bore	Keyseat	Bore	Keyseat
½ and 9/16	⅛ x 1/16	1⅞ to 2¼	½ x ¼
⅝ to ⅞	3/16 x 3/32	2⅜ to 2⅝	⅝ x 5/16
15/16 to 1¼	¼ x ⅛	2¾ to 3⅞	¾ x ⅜
1 5/16 to 1 13/16	⅜ x 3/16		

For shafts having wider or narrower keyseats than in the pulley we can supply offset keys.

Hub Lengths are made three times the bore, less ¼ inch to ½ inch when construction will permit. Hub locations conform generally to the following table. However, conditions of design frequently require other hubs and locations. If these dimensions are important, send for detailed list.

Dimensions, Inches			
Diam. of Pulley	Hub to Rim Mach. Side	Diam. of Pulley	Hub to Rim Mach. Side
1½ to 3½	Flush	6 to 10	⅜
4 to 5½	¼	11 to 14	⅝

HOW TO ORDER ROCKWOOD PAPER PULLEYS

When ordering specify: (See cut above):

1—Number of pulleys wanted.
2—Diameter (D).
3—Total width of face (F).
4—Width of belt.
5—Exact bore or shaft diameter (B).
6—Width of keyway.
7—Depth of keyway in pulley.
8—Length of hub (H).
9—Distance from end of hub to edge of rim (O).
10—Kind of face—whether crown, straight, double crown or combination.

ROCKWOOD PAPER PULLEYS

In determining the size pulley required, the following formula can be used: Multiply the diameter of the driven pulley by its revolutions per minute, and divide by the number of revolutions of the driver.

LIST PRICES OF ROCKWOOD PULLEYS

Diam.	Total Face Width							
In.	2	3	4	5	6	7	8	9
1½	$4.20	$4.70	$5.20	$5.60	$6.10	....	....	....
2	4.30	4.80	5.30	5.80	6.30	$7.00	....	....
2½	4.50	5.00	5.50	6.00	6.60	7.30	$8.40	....
3	4.80	5.30	5.80	6.30	6.80	7.70	8.80	$9.90
3½	5.20	5.70	6.20	6.70	7.30	8.10	9.20	10.30
4	5.60	6.10	6.60	7.20	7.80	8.50	9.60	10.70
4½	6.10	6.60	7.10	7.70	8.30	9.00	10.00	11.20
5	6.60	7.00	7.60	8.30	9.00	9.80	10.90	12.10
5½	7.10	7.50	8.10	8.80	9.60	10.50	11.60	12.80
6	7.60	8.00	8.70	9.40	10.20	11.20	12.30	13.60
7	8.60	9.00	9.80	10.60	11.50	12.60	13.70	15.10
8	9.60	10.10	11.00	11.90	12.80	13.90	15.10	16.70
9	10.60	11.20	12.20	13.20	14.10	15.30	16.50	18.30
10	11.70	12.40	13.40	14.40	15.40	16.70	18.00	19.90
11	12.90	13.60	14.60	15.60	16.70	18.10	19.50	21.60
12	14.10	14.80	15.90	17.00	18.10	19.60	21.10	23.30
13	15.30	16.00	17.20	18.40	19.60	21.20	22.80	25.10
14	16.50	17.30	18.50	19.80	21.10	22.80	24.50	26.90
15	....	18.60	19.80	21.20	22.60	24.40	26.30	28.80
16	....	19.90	21.10	22.60	24.10	26.10	28.10	30.70
17	....	21.20	22.50	24.10	25.70	27.80	30.00	32.70
18	....	22.50	23.90	25.50	27.40	29.60	31.90	34.70
19	....	23.90	25.30	27.10	29.20	31.50	33.90	36.90
20	....	25.20	26.80	28.70	30.90	33.30	36.20	39.40
21	....	26.60	28.40	30.50	32.80	35.30	38.40	41.80
22	....	28.20	30.10	32.50	35.00	37.50	40.80	44.60
23	....	29.60	31.70	34.30	37.10	39.80	43.00	47.30
24	....	31.20	33.50	36.20	39.20	42.10	45.60	50.10

Diam.	Total Face Width							
In.	10	11	12	13	14	15	16	17
3½	11.40	....	....	....	....	....	....	....
4	11.90	13.00	....	....	....	....	....	....
4½	12.30	13.50	14.70	....	....	....	....	....
5	13.50	14.90	16.70	18.90	....	....	....	....
5½	14.30	15.80	17.70	19.90	22.40	....	....	....
6	15.10	16.80	18.70	20.90	23.90	27.90	....	....
7	16.70	18.60	20.70	23.00	26.10	29.60	33.20	....
8	18.40	20.40	22.70	25.20	28.40	32.20	36.00	41.70
9	20.10	22.30	24.80	27.50	30.80	34.90	39.10	44.70
10	21.90	24.30	27.00	29.90	33.30	37.70	42.20	47.80
11	23.70	26.30	29.20	32.30	35.90	40.50	45.30	51.00
12	25.60	28.40	31.50	34.80	38.60	43.40	48.50	54.30
13	27.50	30.50	33.80	37.40	41.40	46.30	51.70	57.60
14	29.50	32.70	36.20	40.10	44.30	49.50	55.00	61.00
15	31.50	34.90	38.60	42.80	47.30	52.70	58.30	64.50
16	33.50	37.20	41.10	45.60	50.40	56.00	61.70	68.10
17	35.60	39.60	43.70	48.50	53.60	59.30	65.20	71.80
18	37.80	41.60	46.40	51.50	56.90	62.70	68.90	75.60
19	40.30	44.50	49.60	54.80	60.30	66.20	72.50	79.50
20	43.20	47.70	53.00	58.30	63.90	69.90	76.30	83.30
21	46.00	50.90	56.50	62.10	67.80	73.80	80.20	87.30
22	49.20	54.30	60.10	65.90	71.70	77.70	84.20	91.40
23	52.10	57.60	63.70	69.80	75.90	82.00	88.50	95.50
24	55.20	60.90	67.30	73.70	80.10	86.50	93.00	99.60

Prices of larger sizes on application, made in all face widths and up to 72 inch diameter.

"NATIONAL" CARBON BRUSH ASSORTMENTS

NUMBERS 40 AND 55

For Fractional Horsepower Motors

Replacement Brushes for

Vacuum Cleaners
Fans
Vibrators
Electric Ironers
Washing Machines
Sewing Machines
Food and Drink Mixers
Heat Regulators
Pumps
Electric Tools
Cash Registers
Office Appliances

No. 40 Assortment contains 102 brushes (17 types and sizes) and 55 springs (3 sizes). No. 55 Assortment contains 198 brushes (17 types and sizes), and 100 springs (3 sizes). All brushes and springs in both of these assortments are of the finest quality and will take care of replacements on fractional h.p. motors (A.C., D.C., and Universal) used on home, office and shop appliances.

Price, No. **40** Brush Assortment Complete....	**$ 6.00**
Price, No. **55** Brush Assortment Complete....	**10.00**

Replacements

Individual items of brushes and springs for these assortments are available in clearly marked unit packages. In no case will orders be accepted for less than unit package quantities, nor will unit packages be broken.

Type No.	Size and Description	Unit Pkg. Qty.	Price PerPkg.
20	⅝x5/32x5/32, Turned Neck	12	$0.36
21	3/16 dia. x ½ lg., Turned Neck	12	.36
22	3/16 dia. x ¾ lg., Turned Neck	12	.36
23	11/16x3/16x3/16, Turned Neck	12	.36
24	¾x¼x3/16, Turned Neck	12	.36
25	7/32 dia. x ¾ lg., Turned Neck	12	.36
26	27/32x9/32x7/32, Turned Neck	12	.36
27	¾x19/64x15/64, Turned Neck	12	.36
28	¼ dia. x 15/16 lg., Turned Neck	12	.36
29	¾x¼x¼, Plain	12	.36
30	15/16x¼x¼, Turned Neck	12	.36
31	13/16x5/16x¼, Turned Neck	12	.36
32	5/16 dia. x 1 lg., Turned Neck	12	.36
33	1x5/16x5/16, Turned Neck	12	.36
34	¼ dia. x ⅝ lg., with Shunt, Spring and Terminal	10	1.15
35	¾x¼x¼, with Shunt, Spring and Terminal	10	1.15
36	5/16 dia. x 13/16 lg., with Shunt, Spring and Terminal	10	1.15
37	⅛ dia. x 1¼ lg., Phosphor Bronze Spring	25	.75
38	3/16 dia. x 1½ lg., Phosphor Bronze Spring	25	.75
39	¼ dia. x 1½ lg., Phosphor Bronze Spring	25*	.75

*No. 55 Kit contains 50 springs this size.

"NATIONAL" CARBON BRUSHES

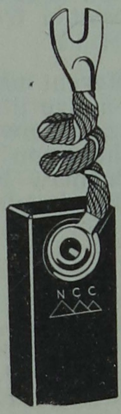
"National" Carbon Brushes are available in grades and sizes to meet the requirements of all types and sizes of generators, motors and converters.

How to Order Brushes

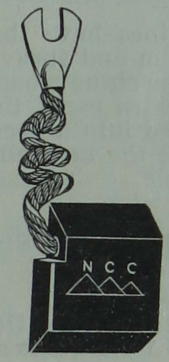
State grade desired. If in doubt, give operating conditions. Specify length first, width second and thickness third. Length of brush is perpendicular to commutator or slip-ring; width is measured parallel to shaft of machine; and thickness in direction commutator or slip-ring is traveling. Dimensions must be given in order stated. Unless otherwise specified, all brushes are furnished without copper coating except brushes with certain types of shunts. Special data sheets have been prepared to assist in the proper specification of carbon brush sizes and types. These forms are available upon request.

Shunts

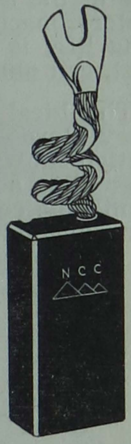
Following are illustrations of three popular types of standard brush shunt connections. Other styles or connections can be furnished to meet all requirements of motors, generators and converters.



Type R



Type 9 Q



Type Q

BRUSH GRADES

Grade No. 255—Electro-graphitic

This grade has a broad field of application on both alternating and direct current machines in almost any voltage above 100 volts. It is non-abrasive, has a high carrying capacity and a high contact drop which insures very good commutation.

Grade No. 401—Carbon

This is a hard material with some polishing action on commutators. It is used on commutators having undercut mica. It is a popular grade for industrial type heavy duty motors such as are used in mills, mines, crane hoists and elevators.

Grade No. 840—Graphite-Carbon

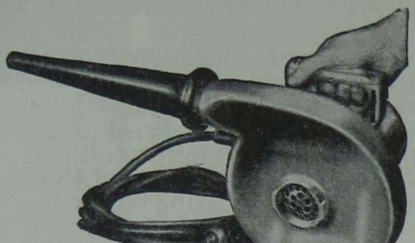
Suitable for machines having flush mica commutators provided the mica is not hard and normal operating conditions prevail. Will also operate satisfactorily on slotted commutators where more severe conditions are met.

Grade No. NJ-25—Metal-Graphite

This is a metal graphite grade designed for medium high current densities — approximately 100 amperes per square inch. Its composition consists of about 75 per cent metal and 25 per cent carbon material. It is an excellent brush for use on commutating machines of the low voltage type —where the voltage does not exceed 25 volts. It also is recommended for plating generators of large capacity having voltage over 6 volts. This grade may be used to advantage on slip rings of rotary converters within its range.

Prices upon application.

IDEAL "3 in 1" CLEANERS
SUCTION — BLOW — SPRAY



Ideal Cleaners of the improved design, giving greater power, makes them suitable for the heaviest dust removal problems. All models are sturdy in construction, and equipped with oil-less ball bearings, assuring exceptionally long life. Fully guaranteed for one year against inherent defects.

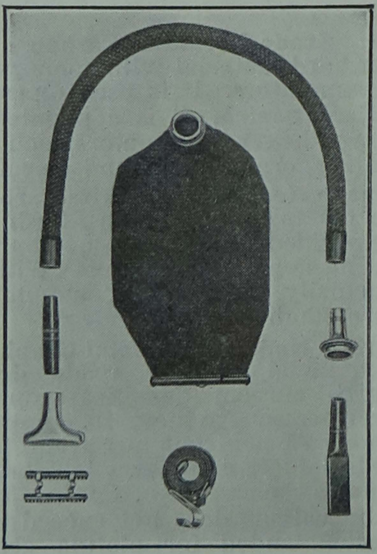
Industrials everywhere are fully agreed that one of the most important factors in maintaining motors, machinery and other equipment, assuring long life, is keeping it as free as possible from dust, grit and other foreign matter.

The Ideal machines have three different uses. They blow—Vacuum and spray. The above illustration shows the machine when used as a blower. By adding a few extra parts, the machine can instantly be converted into a vacuum cleaner.. For spraying, substitute the hose and adapter in place of the rubber nozzle.

Made in Five Styles

Cat. No.	Description	Price Each
10	"Whiz" Model for Light Duty	$49.35
20	"Giant" Model for Intermediate Duty	61.85
30	"Super-Giant" for Heavy Duty	81.25
40	"Hot and Cold Air" Model	74.35
50	"Jumbo" for Extra Heavy Duty	105.60

STANDARD ATTACHMENTS

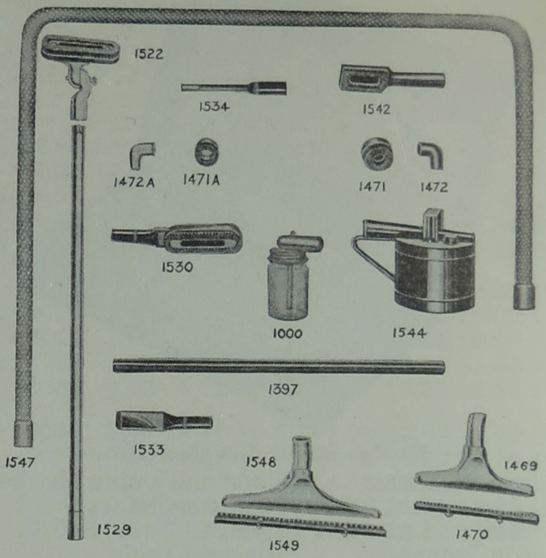


Standard Attachments

Price, Standard Attachments, as Illustrated $12.50

IDEAL "3 in 1" CLEANERS
SUCTION — BLOW — SPRAY

B GROUP—SPECIAL ATTACHMENTS



Cat. No.	Description	Price Each
1000	Paint, Powder and Liquid Sprayer (Qt. or Pt. Size)	$3.45
1397	23-Inch Fibre Extension Handle	2.20
1469	10-Inch Floor Nozzle (For use with No. 1529 Handle)	5.60
1470	10-Inch Snap-on Bristle Brush	1.10
1471	Round Insulated Brush, 2⅞ inches in diameter	1.60
1471A	Round Insulated Brush, 2 inches in diameter	1.55
1472	Semi-hard Rubber Elbow	1.15
1472A	Aluminum Elbow	1.30
1522	Adjustable Wall Brush	6.00
1529	44-Inch Steel Extension Handle	5.30
1530	7-Inch Switchboard Brush	7.40
1533	Flat Fibre Cleaning Tool	2.75
1534	Telephone Braid Cleaning Brush	4.55
1542	4-Inch Semi-hard Rubber Insulated Brush	4.90
1544	Insecticide Sprayer (5 Pint Cap.)	7.50
1546	Flat Flue Cleaning Brush	9.50
1547	8-Foot Hose	4.55
1547A	10-Foot Hose (For use with Jumbo Model only)	6.90
1548	14-Inch Floor Nozzle (For use with No. 1529 Handle)	7.50
1549	14-Inch Snap-on Bristle Brush	1.15

IDEAL PAINT SPRAYER

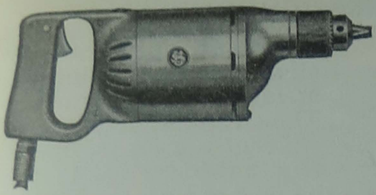
Adapted for ordinary home vacuum cleaners and portable blowers. This attachment very satisfactorily sprays paint, varnish, shellac, lacquer, duco, calcimine, oil, insecticide liquids or powder; in fact, any liquid or powder.

The Ideal Sprayer is easy to attach and simple to operate. It has no parts to interchange and become lost. A small or large spray or volume is obtained by simply adjusting a screw.

Price, No. **1000** Ideal Sprayer, each **$3.45**

U. S. PORTABLE ELECTRIC DRILLS

U. S. DRILLS—¼-INCH AND 5/16-INCH

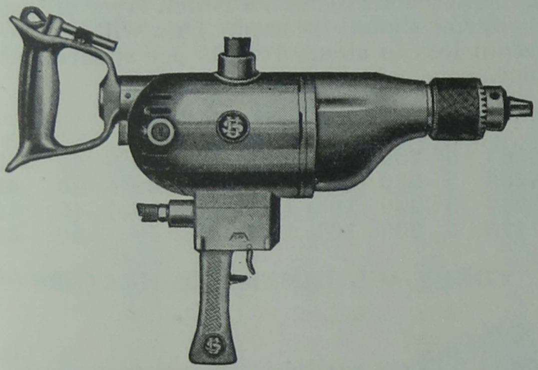


Equipped with universal motor; chrome nickel steel gears, hardened, and run in grease; 3-jaw screw-back chuck for straight shank drill bits, quick make, quick break switch; aluminum body; ball bearings throughout; 15 feet flexible rubber covered cable and attachment plug.

The drill can be used as a small bench grinder for sharpening drill bits, chisels, etc. Stand in which drill may be fastened and grinding wheel and arbor to fit chuck supplied for **$3.50 extra.**

Size, Inches	Speed R.P.M.	Cap., In. Metal	Cap., In. Wood	Dimens. In.	Wt. Lbs.	Price Each
¼ Automatic	2000	¼	½	3½x10	4	**$19.95**
¼ Aero	2500	¼	½	2⅜x 7¼	2¾	**32.50**
¼ Regular	2200	¼	½	4 x10½	5¾	**32.50**
¼ H.D.	2000	¼	½	4 x11	7¾	**45.00**
5/16 H.D.	1250	5/16	⅝	4 x12	8	**48.00**

½-INCH, ⅝-INCH AND ¾-INCH HEAVY DUTY

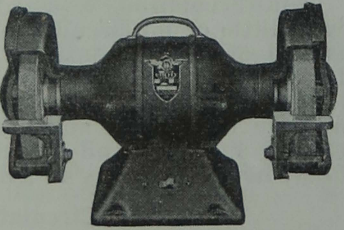


Recommended for continuous production service in industrial plants, service stations, garages, etc.

Size In.	Speed R.P.M.	Cap., In. Metal	Cap., In. Wood	Dimens. In.	Wt. Lbs.	Price Each
½	425	½	1	5x18	16½	**$68.00**
⅝	450	⅝	1¼	5x19	23½	**83.00**
¾	375	¾	1½	5x19	25½	**90.00**

U.S. ELECTRIC BENCH GRINDERS

6, 7, 8 AND 10-INCH "UTILITY" TYPE



Powerful. Ball bearing construction. For general purpose grinding and tool sharpening. With guards; adjustable tool rests; switch in base; 12 feet of cord, and plug. Specify voltage, cycle, and phase for A.C.

Size In.	Wheel Size, In.	Hole Size, In.	Speed R.P.M.	Wt. Lbs. Each	Price Each
6	6x ¾	½	3450	55	**$25.00**
7	7x ¾	½	3450	64	**40.00**
8	8x1	⅝	3450	90	**60.00**
10	10x1	¾	1750	152	**98.00**

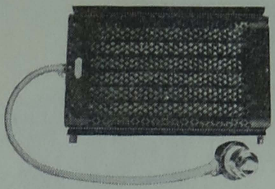
6- and 7-inch grinders furnished for 110 or 220 volts, 50 or 60 cycle, 1, 2 or 3 phase, A.C.. For 220 volts A.C. or 2 or 3 phase, increase price 10%, net.

8- and 10-inch grinders furnished for 110, 220 or 440 volts, 25 to 60 cycle, 1, 2 or 3 phase, A.C. For other than 50 or 60 cycles, increase price 10%, net.

Pedestal for 6, 7, and 8-inch sizes	**$15.00**
Pedestal for 10-inch size	**26.00**

WESTINGHOUSE INDUSTRIAL HEATING EQUIPMENT

WALL-MOUNTED AIR HEATERS



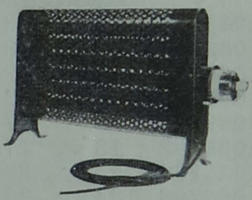
The electric heater that solves the heating problems for those out-of-the-way places. Choose the one best adapted to your requirements — floor or wall model. Installation is easy. Clean, steady, odorless heat is available at the flip of a switch. The switch, attached to the side of the heater, is the convenient, 3-heat type — choice of high, medium or low heat.

Without Armored Cable and Switch†

Cat. No. 115 Volt	Cat. No. 230 Volt	Cat. No. 440 Volt	Watts	Shpg. Wt. Lbs.	Price Each
1103850	**1103851**	**1103852**	1000	22	**$17.00**
1103853	**1103854**	**1103856**	2000	32	**23.00**
1103857	**1103858**	**1103860**	3000	40	**29.00**
....	**1103861**	**1103863**	4500	50	**39.00**

†Additional price for Cable and Switch: 115 and 230-volt style—1000-watt, **$3.00**; 2000-watt, **$4.00**; 3000-watt, **$5.00**. 230-volt style—4500-watt, **$6.00.**

FLOOR-MOUNTED AIR HEATERS



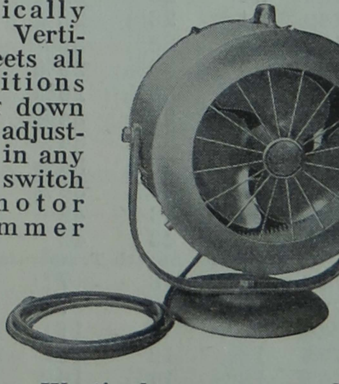
For crane cabs, truck houses, valve houses, locomotive cabs, scale rooms and garages.

Heating element consists of a series of Westinghouse strip heaters, firmly fastened to the cast-iron ends of the frame. The design of these heaters makes it possible to eliminate switching to high, low, or medium heat. By using a Westinghouse Type AA Thermostat, the desired temperature can be steadily maintained without attention.

Cat. No. 115 Volts	Cat. No. 230 Volts	Watts	Overall Lgth. In.	Hght. In.	Shpg. Wt.Lbs.	*Price Each
1103864	**1103865**	1000	29½	10¾	25	**$20.00**
1103867	**1103868**	2000	29¾	13½	33	**27.00**
1103871	**1103872**	3000	30⅛	17¼	40	**34.00**
....	**1103875**	4500	36¾	17¼	50	**45.00**

*With switch and 10 feet of rubber-covered cable.

ALL-ELECTRIC DOUBLE-PURPOSE FAN-TYPE UNIT HEATER



Adjustable vertically and horizontally. Vertical adjustment meets all installation conditions without tearing down heater. Horizontal adjustment, 360 degrees in any direction. Winter switch—operates both motor and heater. Summer switch — operates fan only for summer cooling. Has temperature time switch for protection against overheating. Westinghouse motor. Corox heating element.

Single-Phase, 50/60 Cycle A.C.

Cat. No. 115 Volts	Cat. No. 230 Volts	KW	Btu Per Hr.	Shpg. Wt.Lbs.	Price Each
1145978	**1145855**	2	6,824	40	**$41.00**
1147248	**1145856**	3	10,236	45	**47.00**
....	**1145857**	4	13,648	50	**52.00**

WESTINGHOUSE INDUSTRIAL HEATING EQUIPMENT

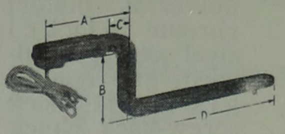
STRIP HEATERS

Both Terminals at One End

Cat. No.	Heater Size	Overall Length	Between Mounting Holes	Watts	Volts	List Price
Maximum Sheath Temperature 750° F.						
1085725	8	8	7	150	115	**$1.80**
1085732	8	8	7	150	230	**1.80**
1085726	12	12	11	250	115	**1.90**
1085733	12	12	11	250	230	**1.90**
1085727	18	17⅞	16⅞	350	115	**2.10**
1085734	18	17⅞	16⅞	350	230	**2.10**
1085728	24	23¾	22¾	500	115	**2.25**
1117498	24	23¾	22¾	500	208	**2.25**
1085735	24	23¾	22¾	500	230	**2.25**
1086177	24	23¾	22¾	500	250	**2.25**
1085729	30½	30⅜	29⅜	750	115	**2.75**
1085736	30½	30⅜	29⅜	750	230	**2.75**
1117154	30½	30⅜	29⅜	750	250	**2.75**
1085730	36	35¾	34¾	1000	115	**3.25**
1085737	36	35¾	34¾	1000	230	**3.25**
1085731	43	43	42	1250	115	**3.85**
1085738	43	43	42	1250	230	**3.85**
Maximum Sheath Temperature 1250° F.						
1085753	8	8	7	250	115	**2.60**
1085760	8	8	7	250	230	**2.60**
1085754	12	12	11	350	115	**2.90**
1085761	12	12	11	350	230	**2.90**
1085755	18	17⅞	16⅞	500	115	**3.30**
1085762	18	17⅞	16⅞	500	230	**3.30**
1085756	24	23¾	22¾	750	115	**3.70**
1085763	24	23¾	22¾	750	230	**3.70**
1086176	24	23¾	22¾	500	250	**3.70**
1085757	30½	30⅜	29⅜	1000	115	**4.40**
1085764	30½	30⅜	29⅜	1000	230	**4.40**
1085758	36	35¾	34¾	1500	115	**5.00**
1085765	36	35¾	34¾	1500	230	**5.00**
One Terminal at Each End						
Maximum Sheath Temperature 750° F.						
1085739	8	8	7	150	115	**$1.80**
1085746	8	8	7	150	230	**1.80**
1085740	12	12	11	250	115	**1.90**
1085747	12	12	11	250	230	**1.90**
1085741	18	17⅞	16⅞	350	115	**2.10**
1085748	18	17⅞	16⅞	350	230	**2.10**
1086180	24	23¾	22¾	335	208	**2.25**
1085742	24	23¾	22¾	500	115	**2.25**
1086181	24	23¾	22¾	500	208	**2.25**
1085749	24	23¾	22¾	500	230	**2.25**
1086179	24	23¾	22¾	500	250	**2.25**
1085743	30½	30⅜	29⅜	750	115	**2.75**
1085750	30½	30⅜	29⅜	750	230	**2.75**
1086182	36	35¾	34¾	750	115	**3.25**
1086183	36	35¾	34¾	750	230	**3.25**
1085744	36	35¾	34¾	1000	115	**3.25**
1085751	36	35¾	34¾	1000	230	**3.25**
1085745	43	43	42	1250	115	**3.85**
1085752	43	43	42	1250	230	**3.85**
Maximum Sheath Temperature 1250° F.						
1085767	8	8	7	250	115	**2.60**
1085774	8	8	7	250	230	**2.60**
1085768	12	12	11	350	115	**2.90**
1085775	12	12	11	350	230	**2.90**
1085769	18	17⅞	16⅞	500	115	**3.30**
1085776	18	17⅞	16⅞	500	230	**3.30**
1085770	24	23¾	22¾	750	115	**3.70**
1085777	24	23¾	22¾	750	230	**3.70**
1086178	24	23¾	22¾	500	250	**3.70**
1085771	30½	30⅜	29⅜	1000	115	**4.40**
1085778	30½	30⅜	29⅜	1000	230	**4.40**
1085772	36	35¾	34¾	1500	115	**5.00**
1085779	36	35¾	34¾	1500	230	**5.00**

WESTINGHOUSE INDUSTRIAL HEATING EQUIPMENT

COROX IMMERSION HEATERS



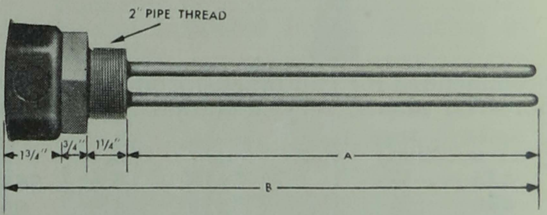
Designed specifically to eliminate fuel firing of metal-melting furnaces. They can be safely and efficiently used for melting babbitt, lead and other soft metal where the operating temperature does not exceed 950° F.

The heating element is the famous Westinghouse Corox unit enclosed in a steel tube and cast in iron. This construction increases the heater's radiating surface and reduces the watts radiated per square inch. This is desirable in heating white and similar metals. Care should be exercised in the application of these heaters to be certain that the metal heated does not have corrosive action on the cast iron.

Two factors determine the number of heaters required: the construction of the vessel, which controls the radiation losses and the quantity of metal to be melted. The greatest percentage of radiation loss comes from the surface of the molten metal itself. Wherever possible, a 2-inch layer of insulating material should be used. This will reduce the radiation loss to about 5 watts per square inch of surface.

Cat. No.	Kw.	Volts	Dimens., Inches A	B	C	D	Shpg. Wt. Lbs.	Price Each
798267	5	230	10¾	5¾	4⅛	26⅜	45	**$42.00**
798268	5	230	10¾	8	4⅛	26⅜	45	**42.00**
1117877	5	230	10¾	12¼	4⅛	16	46	**42.00**
1117879	5	230	10¾	19¼	4⅛	16	50	**42.00**

COROX OIL IMMERSION HEATERS



Oil heaters should not be used for water or in solutions that will attack the steel tubes. They are designed specifically for heating mineral oil, paraffin and alkaline cleaning solutions. Two types of oil immersion heaters are available.

Non-Circulating, designed for tanks or oil baths with little or no circulation. The Circulating type is designed for applications where the oil is circulated at a sufficient rate to absorb heat fast enough to prevent excessive heater tube temperatures. The average oil-heating application requires approximately 8 gals. of oil circulated per hour, i.e., a 5Kw. heater requires 40 gals. circulated per hour.

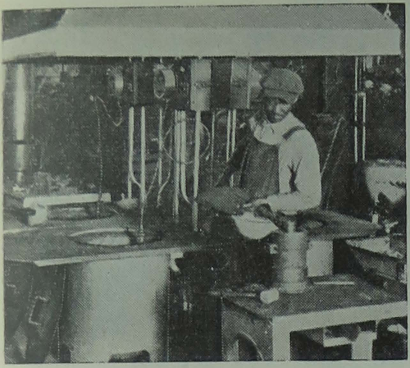
For Non-Circulating Systems

Cat. No.	Kw.	Volts	No. of Heats	Watts*	Tube Lgth. In.	No. of Heater Tubes	Price Each
1117440	1	115	3	14	14	2	**$13.60**
1117441	1	230	3	14	14	2	**13.60**
1117442	2	115	3	14	28	2	**18.25**
1117443	2	230	3	14	28	2	**18.25**
1117444	3	115	3	15	37	2	**23.00**
1117445	3	230	3	15	37	2	**23.00**
For Circulating Systems							
1117446	5	230	3	29	32½	2	**20.70**
1117447	6	230	3	30	37	2	**23.00**
1117448	8	230	3	25	32½	4	**27.70**

WESTINGHOUSE INDUSTRIAL HEATING EQUIPMENT

TYPES B AND C MELTING POTS

Automatic Operation **Temperature—To 950 Degrees F**



For melting babbit and other soft metals. Made in 3 sizes: B-150, B-750 and C-1500. Capacities, respectively: 50-50 solder, 150, 750 and 1500 pounds; lead, 190, 950 and 1900 pounds; babbitt (80 per cent lead,) 170, 860 and 1710 pounds. Volume, respectively, 520, 2780 and 6100 cubic inches.

The inner crucible is of cast metal, heat-resisting and non-corroding. Insulating brick in between heating elements of nickel chromium. Thermostatic equipment provides automatic temperature control. Melting pots are also available in the bottom-pouring and tilting types.

Standard Stationary Type

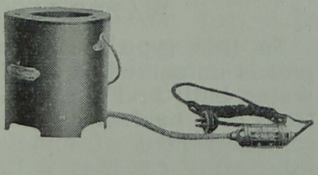
Size	Kw.	Volts	Phase	Contactor Frame No.	Shpg. Wt. Lbs.	Price Bare Pot
B-150	4.5	220	1	12-F-5	275	**$115.50**
		230	D-C	12-C-2	275	**115.50**
		440	1	12-F-5	275	**115.50**
B-750	13.5	220	1	42-F	650	**231.00**
		230	D-C	32-C-2	650	**231.00**
		220	3	35-F-5	650	**231.00**
		440	1	32-F-5	650	**231.00**
C-1500	22	220	1	52-F	1575	**379.50**
		230	D-C	42-C-2	1575	**379.50**

Specify type and size, voltage, phase and frequency.

The following control equipment must be added to the bare pot to make an operable unit: 1 industrial heating control panel having proper contactor frame number; 1 thermostat, with cast-iron protected bulb.

Disconnecting switches should always be used.

SMALL THREE-HEAT SOLDER POTS



Two sizes of the Westinghouse solder pots are made. The smaller holds 10 pounds of solder and has a content of 30 cubic inches, the larger has a capacity of 50 pounds of solder and a content of 167 cubic inches. The temperatures of both sizes are controlled by three-heat snap switches so that a range of temperature up to 950°F. can be obtained.

For both sizes the outer casing will be sheet steel and the pot of cast iron. The heating elements of both sizes are coils of nickel-chromium wire threaded into ceramic insulators and supports. These elements fit around and in close contact to the crucibles.

Cat No.	Cap. in Lbs. Solder	Cap. in Quarts	Watts Input	Volts	Shipping Wt. Lbs.	Price Each
299708	10	0.6	600	110	11	**$12.50**
710503	50	3.0	1800	110	125	**65.00**
710502	50	3.0	1800	220	125	**65.00**

When ordering, specify: Style number, capacity and voltage.

WESTINGHOUSE INDUSTRIAL HEATING EQUIPMENT

AUTOMATIC ELECTRIC GLUE POTS

The automatic dry-type glue pot is convenient, easily transported and provides quick heat, accurately controlled. The famous Westinghouse Built-in Watchman, a snap action thermostat, maintains the temperature at 150°-160° F., the most efficient temperature for keeping the glue at working consistency without cooking it. Only 30 to 50 minutes required to heat a full container to 150° F., depending upon the type of glue used.

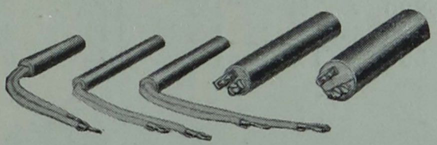
The removable glue container is nickel-plated copper, a material that will hold heat and yet withstand hard service under constant use. Insulation next to the outer wall of the outside vessel prevents heat loss and increases the efficiency. The nickel-chromium heating element comes next with mica insulation to protect it from the inner wall of the outside vessel.

Eight feet of heavy rubber insulated cord is furnished with each unit. The construction of these glue pots is approved by Underwriters' Laboratories, Inc.

Cat. No.	Capacity Quarts	Watts	Volts	Dimens., In. Height	Dimens., In. Diam. of Casing	*List Price Pot Complete
1103206	2	250	115	9	7⅜	**$18.50**
1103325	2	250	230	9	7⅜	**18.50**

*Extra inner vessel and cover, add $4.50.

ELECTRIC CARTRIDGE HEATERS



These units are designed for direct contact with the material or object to be heated and must be applied only by fitting them tightly in a hole drilled in the machine casting so that the heat will be conducted away rapidly. Unless specially designed, cartridge heaters are not suitable for operation in air or for immersion in water, oil, acids, or other liquids. Ratings, sizes, lengths, and variations of these, other than given below are available.

Monel Wire Terminal Connection

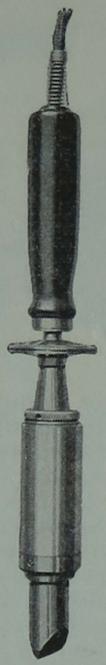
Cat. No. 115 Volts	Cat. No. 230 Volts	Watts	Recept. Dia., In.	Lgth. In.	Shpg. Wt. Lbs.	Price Each
854833	**854834**	75	½	2½	1	**$2.35**
859609	**855157**	100	½	2½	1	**2.35**
1024983	**1086373**	150	½	8	1	**4.30**
854837	**854838**	90	⅝	2⅜	1	**2.60**
522759	**762764**	150	⅝	2⅝	1	**2.60**
522760	**762765**	250	⅝	4⅛	1	**3.25**
522762	**762766**	200	¾	4 9/32	1	**3.55**
			Brass Terminal Connection			
854849	**854850**	90	15/16	4⅞	2	**4.10**
854851	**854852**	100	15/16	4⅞	2	**4.10**
522764	**762767**	150	15/16	3⅝	1	**3.65**
522766	**762768**	250	15/16	5⅛	2	**4.20**
522768	**762769**	400	15/16	5⅝	2	**4.40**
854855	**854856**	300	1 19/64	5	2	**4.65**
522755	**762771**	600	1 5/16	5 3/16	2	**4.65**

AMERICAN BEAUTY ELECTRIC SOLDERING IRONS

3138

3158

3178


3198

Made in four sizes—for light, medium, medium-heavy and heavy work. Furnished complete with six-foot cord and attachment plug cap. Made in all standard voltages. Can also be supplied for 12 volts and 32 volts.

Cat. No.	Watts	Dia. of Tip, In.	Out. Dia. O'all, In.	Length O'all, In.	Wt. Oz.	Price Each
3138	100	⅜	⅞	12⅞	16	**$7.20**
3158	200	⅝	1¼	13⅝	28	**8.60**
3178	300	⅞	1 9/16	14⅜	42	**11.50**
3198	550	1⅛	1¾	15	60	**15.00**

Designed for small, light telephone, radio and other work of this kind where less heat is required than is supplied by the 100-watt No. 3138 type. It is very light and handy to use.

Complete with 6-foot super-flexible cord and attachment plug cap. Weight with attached cord, 10 ounces. Packed with wire rest stand in individual cartons.

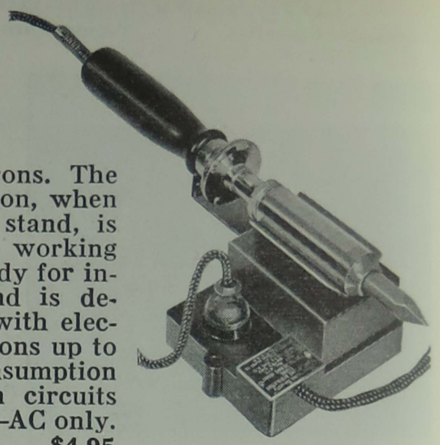
Cat. No.	Watts	Diam. Tip	Length Overall	Net Wt. Ounces	Price Each
S-76	50	7/16	11⅝	6	**$4.50**

Made in all standard voltages. Can also be supplied for 6 volts, 12 volts, and 32 volts.

EXTRA COPPER TIPS

Cat. No.	Description	Wt. Oz.	Price Each
3734	For No. S-76	1	**$0.30**
3738	For No. 3138	2½	**.50**
3758	For No. 3158	7	**1.10**
3778	For No. 3178	16	**1.90**
3798	For No. 3198	28	**2.20**

"AB" TEMPERATURE REGULATING STAND



This is a thermostatically controlled device for the regulation of the temperature of electric soldering irons. The soldering iron, when placed on this stand, is maintained at working temperature ready for instant use. Stand is designed for use with electric soldering irons up to 600 watts consumption and for use on circuits up to 240 volts—AC only. Price, No. 475..........**$4.95**

AMERICAN BEAUTY ELECTRIC GLUE POTS

DRY TYPE

Constructed of aluminum alloy casting of substantial thickness and strength, with outer enclosing casings heavy sheet steel.

The glue is put directly into cast aluminum pot. Separate glue pails to fit into the pot can be furnished if desired, but are not necessary.

Reversible wiping bail. Complete with cord, connector, and attachment plug cap.

Cat. No.	Cap. Qts.	Max. Watts	Size, Inches			Shpg. Wt.Lbs.	Price Each
			Hght.	Diam.	Dpth.		
141	1	250	6½	7¾	4⅛	10	**$21.00**
142	2	350	8⅝	8¾	5½	14	**26.50**
144	4	660	10	10	7	25	**37.00**

Made in all standard voltages. In ordering always specify whether for use on alternating or direct current.

WATER-JACKETED TYPE

In this type the glue pail is immersed in a hot water bath and the contents thus heated.

Constructed of aluminum alloy castings with heavy spun seamless copper (nickeled) glue containers. Outer enclosing casing of heavy sheet steel.

Pails equipped with reversible wiping bails. Complete with cord, connector and attachment plug cap.

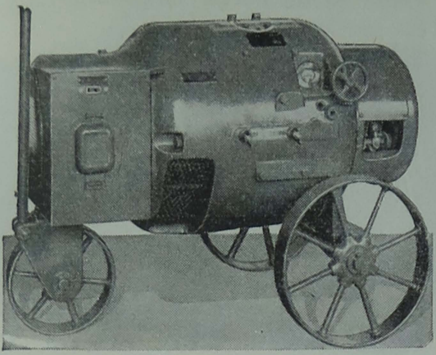
Cat. No.	Cap. Qts.	Max. Watts	Size, Inches			Shpg. Wt.Lbs.	Price Each
			Hght.	Diam.	Dpth.		
1041	1	440	6⅜	8¼	4	12	**$27.50**
1042	2	660	7¾	10	5⅝	18	**34.00**
1044	4	880	10½	12⅜	7	30	**54.00**

Made in all standard voltages. In ordering always specify whether for use on alternating or direct current.

WESTINGHOUSE ARC WELDING EQUIPMENT

WESTINGHOUSE FLEXARC WELDERS

Single Operator—200, 300, 400 Amperes



Portable, Motor Driven, FlexArc Welder

A self-contained, sturdy and compact unit for general welding as well as production work. It is suited for welding with bare, coated, or covered electrodes.

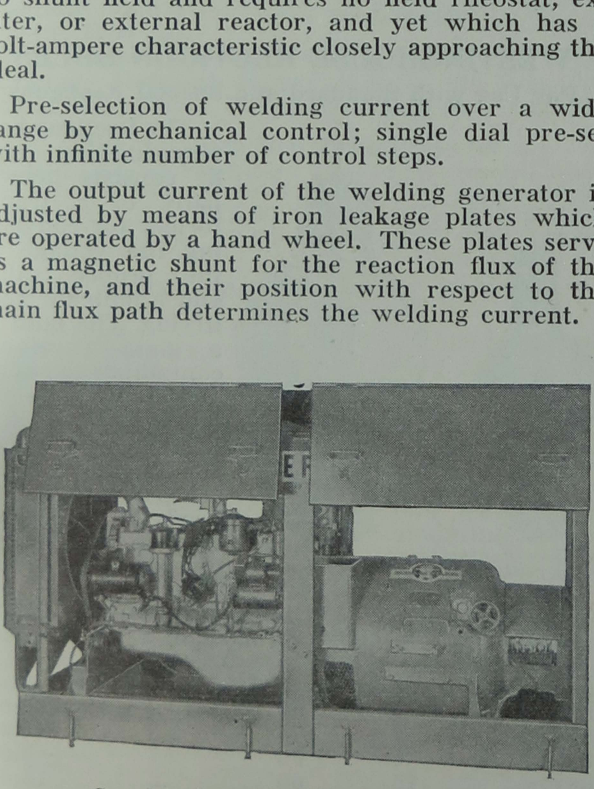
A few of the many applications are:—building, drilling machinery, drill bits, bridge, pipe line, heavy machinery, boiler and tank construction. Engine driven units can be used for thawing water pipes.

Some of the distinctive features are: absolutely constant arc, high efficiency, low cost per unit of weld, stronger and denser welds, uniform results on thick or thin plate, fewer spare parts and no vibration.

The welding generator operates on an entirely new principle of magnetic control, utilizing a magnetic shunt in the armature reaction flux path. By this means a generator is obtained which has no shunt field and requires no field rheostat, exciter, or external reactor, and yet which has a volt-ampere characteristic closely approaching the ideal.

Pre-selection of welding current over a wide range by mechanical control; single dial pre-set with infinite number of control steps.

The output current of the welding generator is adjusted by means of iron leakage plates which are operated by a hand wheel. These plates serve as a magnetic shunt for the reaction flux of the machine, and their position with respect to the main flux path determines the welding current.



Complete Assembly View of a Stationary FlexArc Gasoline Engine Driven Welder with Side Covers Lifted

WESTINGHOUSE FLEXARC WELDERS

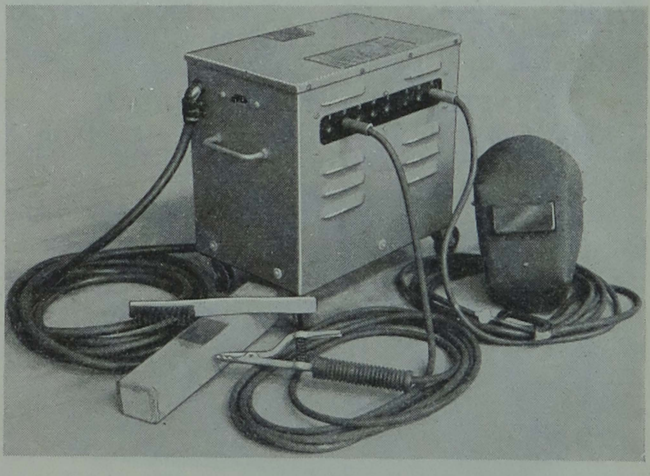
Motor Driven Sets

1-Hr. 50° C. Rating Amps.	Current Range Amps.	Type Motor Drive	Dimens., Inches			Wt. Lbs.
			Lgth.	Wdth.	Hght.	
		Stationary Type				
200	60-250	50/60 Cy.	41	24	26	1135
200	60-250	D.C.	48	24	31	1415
300	90-375	50/60 Cy.	48	24	26	1346
300	90-375	D.C.	53	24	31	1560
400	120-500	50/60 Cy.	48	27	29	1715
400	120-500	D.C.	51	27	37	1995
		Portable Type				
200	60-250	50/60 Cy.	44	29	34	1209
200	60-250	D.C.	48	29	39	1580
300	90-375	50/60 Cy.	50	29	34	1420
300	90-375	D.C.	53	29	39	1710
400	120-500	50/60 Cy.	50	32	37	1789
400	120-500	D.C.	51	32	45	2170
		Engine Driven Sets				
*200	60-250	....	72	28½	45	1750
200	60-250	....	77½	28¼	48⅞	2140
†200	60-250	....	84½	28¼	48⅞	2440
300	90-375	....	79	28¼	48⅞	2290
†300	90-375	....	91¾	28¼	48⅞	2460
400	120-500	....	84¼	31¼	47¾	2865
†400	120-500	....	96¾	31¼	47¾	3165
		Belted or Coupled Generators				
‡200	60-250	....	36	23	24	895
‡300	90-375	....	40	23	24	1045
‡400	120-500	....	39	26	28	1450

*Stripped down model. †Equipped with auxiliary power generator. ‡Shaft Extension: length, 4⅝ inches; diameter, 1⅝ inches. Key, 3½ inches long, ⅜x⅜ inches. Speed, 1450-1800 rpm.

WESTINGHOUSE NEW MIDGET MARVEL FLEXARC WT-1 A-C. WELDERS

20 to 140 Amperes — Electrodes $\frac{1}{16}$″ to $\frac{5}{32}$″



Midget Marvel FlexArc A-C. Welder

Designed and built in accordance with high standards of Westinghouse FlexArc welding quality. Has a special transformer and control designed for a-c. arc welding with fifteen steps of current adjustment.

Some features of this welder are: heavy bayonet plugs and receptacles, current adjustment in fifteen steps, complete accessories, welded steel housing, 15 feet primary cable, 15 feet of electrode lead, 15 feet of work lead, and dual primary voltage. Coated electrodes, $\frac{1}{16}$ to $\frac{5}{32}$-inch.

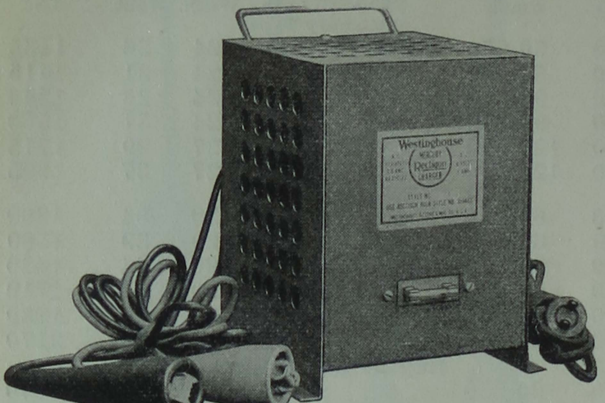
The efficiency for 110-ampere setting, 86. Overall height, 17$\frac{11}{16}$ inches; overall length 20 inches; overall width, 10¾ inches. Approximate net weight, 115 pounds.

Prices and complete information on request.

WESTINGHOUSE RECTIGON BATTERY CHARGERS

ONE-BATTERY ONE-BULB TYPE

For Charging One 3-Cell Battery at 5 Amperes or One 6-Cell Battery at 2.5 Amperes



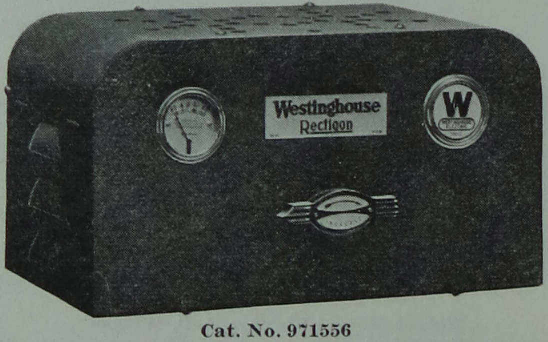
Rigid pressed-steel case with removable cover held in place with one screw. Easy to use. No moving parts. No adjustment necessary. No switches. Fuse renewable from outside of case. 5-amp. bulb easily accessible. Portable. No radio interference. Vacuum impregnated transformer. Battery leads complete with rubber-insulated clips. A-C. cord complete with plug. Battery cannot discharge through rectigon if power fails. When power comes back on, charger starts again automatically. As battery nears full charge, rate tapers off eliminating danger of overcharging. Size, inches: 7⅝x6$\frac{7}{16}$x6$\frac{7}{16}$. Shipping weight 12 pounds.

Cat. No.	Volts	Cycles	Type of Transformer	Price Each†
966500*	115	60	2-Winding	**$14.00**
971282	115	40–50	2-Winding	**16.00**
971283	115	25–30	2-Winding	**18.00**
971284	230	60	2-Winding	**17.00**

*Carried in Stock. †Complete with Bulb. Renewal Bulb Catalog No. 859483.

6-BATTERY RECTIGON CHARGER

From 1 to 6 Batteries in 24 Hours—One-Bulb Type—6 Amperes Maximum Rate



Cat. No. 971556

Nine steps of adjustment. Single dial control. Starts automatically with current. No plug and socket connections. Dial switch. Vacuum impregnated transformer. Reactance-type ballast. Marked indicating ammeter. Fuse-protected bulb and transformer. Strong, ventilated steel cabinet. Bulb and fuse accessible. Acid-resisting finish. Wall or bench mounting. Shipping weight 48 pounds.

Cat. No.	Volts	Cycles	Type of Transformer	Dimens., Inches Hght.	Wdth.	Dpth.	Price Each‡
971556§	115	50–60	Single-Winding	8½	16	9	**$29.50**
1070330¶	115	25–40	Single-Winding	8½	16	9	**42.00**
1070332§	230	50–60	2-Winding	8½	16	9	**45.00**
¶	230	25–40	2-Winding	11½	17	13	**54.00**

‡Complete with Bulb. §Carried in stock. ¶Not in stock. Renewal Bulb Catalog No. 289414.

WESTINGHOUSE RECTIGON BATTERY CHARGERS

12-BATTERY RECTIGON CHARGER

From 1 to 12 Batteries in 24 Hours—One-Bulb Type—6 Amperes Maximum Rate

Westinghouse
Rectigon

Cat. No. 1070333

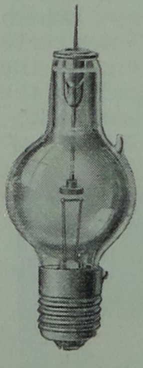
On-and-off switch incorporated in main dial switch. 27 steps of adjustment. No trick starting mechanism. Starts automatically when current is turned on. No plug and socket connections. Rugged, handy dial switches. Vacuum impregnated transformer. Reactance-type ballast for highest efficiency. Correct indicating ammeter, properly marked to show maximum safe charging rate. Bulb and transformer protected by fuses. Extra strong steel cabinet, fully ventilated. Bulb and fuse accessible through door on side. Acid and wear-resisting finish. Wall or bench mounting. Shipping weight 58 pounds.

Cat. No.	Volts	Cycles	Type of Transformer	Dimens., Inches Hght.	Wdth.	Dpth.	Price Each‡
1070333*	115	50–60	Single-Winding	8½	16	9	**$36.00**
1129344†	115	25–40	Single-Winding	11½	17	13	**57.00**
1070334*	230	50–60	2-Winding	11½	17	13	**60.00**
†	230	25–40	2-Winding	11½	17	13	**69.00**
1129343†	115	50–60	2-Winding	11½	17	13	**60.00**

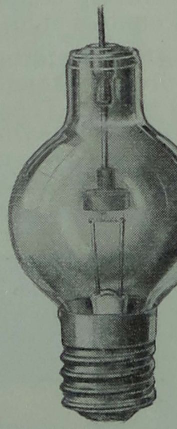
*Carried in stock. †Not in stock. ‡Complete with Bulb. Renewal Bulb Catalog No. 289416.

WESTINGHOUSE RECTIGON BULBS

For Use with Standard and Special Rectigons



No. 289415



No. 766776

The Rectigon battery-charging outfit consists principally of a transformer for converting the voltage to the proper value and a bulb for rectifying. The bulb is a glass envelope, containing an anode and a cathode in the shape of a filament, surrounded by an atmosphere of pure argon. Leads to anode and cathode are sealed through glass walls of bulb.

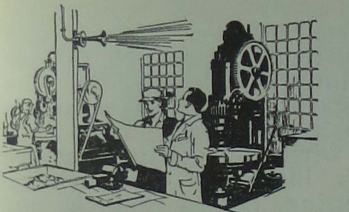
For convenience of installing, the filament leads are connected to the terminals of a screw base.

Cat. No.	D-C. Amps.	D-C. Volts	Net Wt. Oz.	Price Each
289414	6	60	2	**$5.00**
289415	2	75	5	**4.00**
289416	6	90	7	**5.00**
766776	15	60	2	**10.00**
859483	5	15	1	**5.00**
966626	2	75	5	**4.00**

BENJAMIN INDUSTRIAL HOWLERS

Listed by Underwriters' Laboratories

For Calls and Warnings in Factories, Yards, Etc.

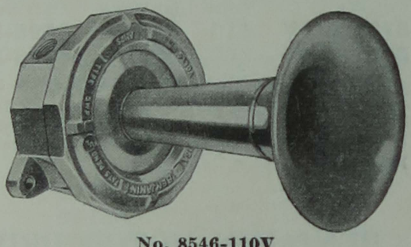


Benjamin Industrial Howlers have a peculiar pitch and penetrating tone which makes them most effective and satisfactory signals. They are so ruggedly made and carefully assembed that infallible daily performance may be expected for years. Their maintenance cost is less than for any other form of signal.

Some Uses for Benjamin Howlers

Factory superintendent's and foreman's calls.
Tell-tale or warning for water tank levels.
Steam or gas pressures, sprinkler systems, etc.
Burglar alarms.
Fire alarms.
Mines.
Draw bridge signals.
Signalling the opening and closing hours.
Police systems.
Railroad crossings.
Marine signals.
Municipal fire stations.

HEAVY DUTY WEATHERPROOF HOWLER



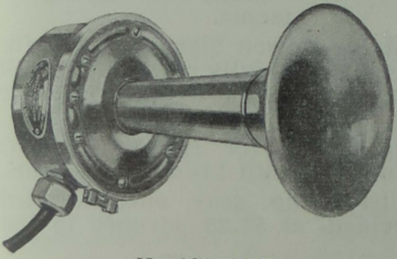
No. 8546-110V

Heavy cast construction, thoroughly weatherproof and dust tight and dependable under severe service. The new threaded ring separable construction and plug-in type of wiring connection assures easy installation and servicing. Housings tapped ½-inch one side, ¾-inch at same price. Finish battleship gray enamel.

With 7½-Inch Bell Type Projector

Alternating Current (*60 Cycles)			Direct Current		
No.	Volts	List Price	No.	Volts	List Price
8546-110V	110	**$15.00**	**8526-110V**	110	**$17.50**
8546-220V	220	**17.50**	**8526-220V**	220	**20.00**

MINE TYPE WEATHERPROOF HOWLER



No. 8652-110V

Dust and moisture proof pressed steel construction. Complete with 8-inch insulated wire leads. Housings have two gasketed mounting holes.

Battleship gray finish.

Alternating Current (*60 Cycles)			Direct Current		
No.	Volts	List Price	No.	Volts	List Price
8652-110V	110	**$15.00**	**8651-110V**	110	**$17.50**
8652-220V	220	**17.50**	**8651-220V**	220	**20.00**

*60 cycles standard. 25 cycles in all voltages supplied at 60 cycle prices.

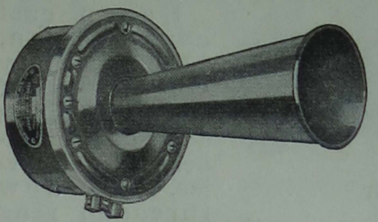
SPECIAL VOLTAGES—To order special voltages, drop voltage suffix of regular number and substitute desired voltage. Voltages to 110 supplied at 110 volt prices; over 110 at 220 volt prices.

Schedule 10 Discounts Apply.

BENJAMIN INDUSTRIAL HOWLERS

Listed by Underwriters' Laboratories

NON-WEATHERPROOF FACTORY HOWLER



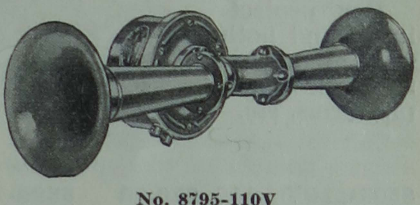
No. 8752-110V

These howlers are of dust proof pressed steel outlet box construction and are for use in interior locations. Howlers have new powerful sounding mechanism and can be easily serviced as the entire projector assembly including the horn mechanism can be removed without touching the wiring. Housings are tapped ½-inch and attach to 3¼- or 4-inch steel outlet boxes. Baked battleship gray enamel. 9-inch conical type projector.

Alternating Current (*60 Cycles)			Direct Current		
No.	Volts	List Price	No.	Volts	List Price
8752-110V	110	**$11.25**	**8751-110V**	110	**$13.75**
8752-220V	220	**13.75**	**8751-220V**	220	**16.25**

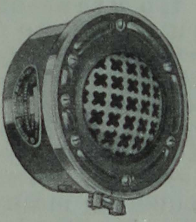
With Double Bell Type Projector

For projecting sound both ways along narrow passages, platforms, etc.



No. 8795-110V

8795-110V	110	**$17.50**	**8794-110V**	110	**$20.00**
8795-220V	220	**20.00**	**8794-220V**	220	**22.50**

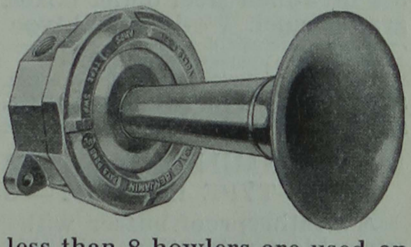


Projectorless Type With Grille Front

For locations where no projector is necessary. Howler has same quick demountable mechanism and plug-in electrical contacts as other howlers shown above.

8741-110V	110	**$11.25**	**8740-110V**	110	**$13.75**
8741-220V	220	**13.75**	**8740-220V**	220	**16.25**

WEATHERPROOF FIRE ALARM HOWLER



Especially for use on fire alarm systems operating under stringent regulations.

Eight fourteen volt or fourteen eight volt howlers may be used in series on 110 volt lines. Where less than 8 howlers are used on 110 volt lines, horns of special voltage can be supplied so that the total voltage of all horns on the circuit will approximate the line voltage.

Surrounding mechanism is vibrator type. Body is cast iron, tapped for ½-inch pipe. One-piece, bell type projector is attached to steel front cover. Finish is red enamel.

No.	Volts	List Price	No.	Volts	List Price
8560-110V	110, DC	**$17.50**	**8565**	*14 , AC	**$15.00**
8560-220V	220, DC	**20.00**	**8566-110V**	*110, AC	**15.00**
8564	*8, AC	**15.00**	**8566-220V**	*220, AC	**17.50**

*60 cycles standard. 25 cycles in all voltages supplied at 60 cycle prices.

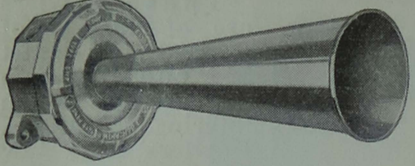
SPECIAL VOLTAGES—To order special voltages, drop voltage suffix of regular number and substitute desired voltage. Voltages to 110 supplied at 110 volt prices; over 110 at 220 volt prices.

Schedule 10 Discounts Apply.

BENJAMIN INDUSTRIAL HOWLERS

Listed by Underwriters' Laboratories

HEAVY DUTY WEATHERPROOF HOWLERS



No. 8557

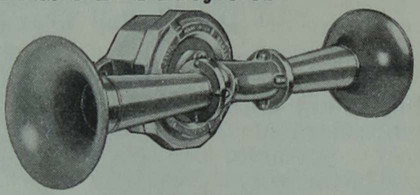
Heavy cast construction, thoroughly weather-proof and dust-tight; dependable under severe service. The new threaded ring separable construction and plug-in type of wiring connection assures easy installation and servicing. Housing tapped ½-inch one side; ¾-inch at same price. Finish, battleship gray enamel.

With 14-Inch Conical Type Projector

Alternating Current (*60 cycles)			Direct Current		
Cat. No.	Volts	List Price	Cat. No.	Volts	List Price
8557-110V	110	**$15.00**	**8558-110V**	110	**$17.50**
8557-220V	220	**17.50**	**8558-220V**	220	**20.00**

With Double Bell Projector

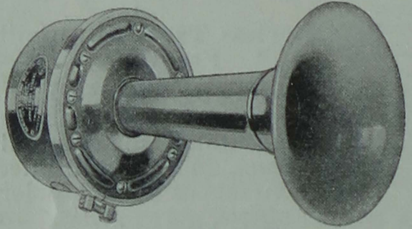
For projecting sound both ways along narrow passages, platforms, etc.



No. 8590

8590-110V	110	**$20.00**	**8599-110V**	110	**$22.50**
8590-220V	220	**22.50**	**8599-220V**	220	**25.00**

NON-WEATHERPROOF HOWLERS



No. 8755

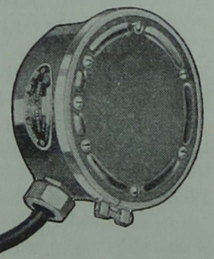
Howlers of dust proof pressed steel outlet box construction for use in interior locations. Howlers have new powerful sounding mechanism and can be easily serviced as the entire projector assembly including the horn mechanism can be removed without touching the wiring. Housings are tapped ½-inch and attach to 3¼ or 4-inch steel outlet boxes. Baked battleship gray enamel. 7½-inch bell type projector.

Alternating Current (*60 cycles)			Direct Current		
Cat. No.	Volts	List Price	Cat. No.	Volts	List Price
8755-110V	110	**$12.50**	**8726-110V**	110	**$15.00**
8755-220V	220	**15.00**	**8726-220V**	220	**17.50**

BENJAMIN INDUSTRIAL BUZZERS

MINE TYPE BUZZERS — 8-INCH LEADS

A weatherproof buzzer with separable construction, suitable for use in tunnels, subways, etc. Buzzers have pressed steel casings with gasket steel covers. Sealed assembly has 8-inch insulated leads. Casings have two sets of attaching holes spaced on 2¾- and 3½-inch centers. Finish, baked battleship gray enamel.



Alternating Current (*60 cycles)			Direct Current		
Cat. No.	Volts	List Price	Cat. No.	Volts	List Price
8679-110V	110	**$ 9.00**	**8678-110V**	110	**$11.50**
8679-220V	220	**11.50**	**8678-220V**	220	**14.00**

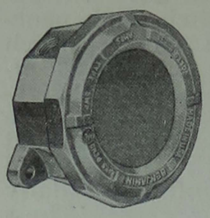
*60 cycles standard. 25 cycles in all voltages supplied at 60 cycle prices.

Schedule 10 Discounts Apply.

BENJAMIN INDUSTRIAL BUZZERS

Listed by Underwriters' Laboratories

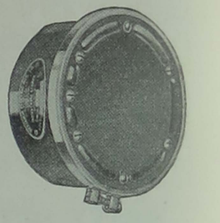
HEAVY DUTY MINE TYPE BUZZER



Heavy cast construction thoroughly weatherproof and dust tight and suitable for use in tunnels, subways, etc. The new threaded ring, separable construction and plug-in type of wiring connections assure easy inspection or servicing. Housing tapped ½-inch one side, ¾-inch at same price. Finish battleship gray enamel.

Alternating Current (60 Cycles)			Direct Current		
Cat. No.	Volts	List Price	Cat. No.	Volts	List Price
8699-110V	110	**$12.50**	**8698-110V**	110	**$15.00**
8699-220V	220	**15.00**	**8698-220V**	220	**17.50**

OFFICE AND FACTORY TYPE BUZZERS



An effective and reliable buzzer for offices, stock rooms, shipping rooms, etc., where a weatherproof signal is not required.

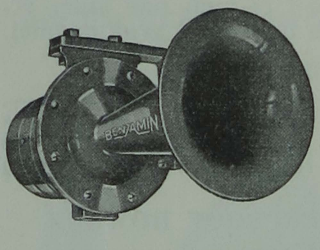
Pressed steel housing and steel covers. Housings tapped ½-inch and attach to 3¼- or 4-inch steel outlet boxes; finish baked, battleship gray enamel.

Alternating Current (60 Cycles)			Direct Current		
Cat. No.	Volts	List Price	Cat. No.	Volts	List Price
8797-110V	110	**$7.25**	**8796-110V**	110	**$ 9.75**
8797-220V	220	**9.75**	**8796-220V**	220	**12.25**

*25 cycles on all voltages at 60 cycle prices.

SPECIAL VOLTAGE—To order special voltage, drop suffix of regular number and substitute desired voltage. Voltages up to 110 volts supplied at 110 volt prices, over 110 at 220 volt prices.

BENJAMIN MOTOR DRIVEN SIGNAL



Weatherproof - Clear and vibrant in tone, the Benjamin Motor Driven Signal has ample power to make its call heard in the most noisy industrial locations. It is especially recommended for such locations as machine shops, stamping and drawing departments.

The Benjamin Motor Driven Signal is ideal for coding. It instantly and faithfully repeats each call whether sent from an automatic calling device or push button.

Wiring—Housing tapped for ½-inch conduit; Signal wired and supplied with 14-inch wire leads.

Finish—Baked battleship gray enamel. Red enamel, when specified, at **$1.25** advance in list price.

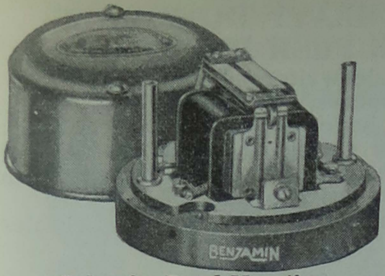
With 8½-inch Single-Bell Type Projector

Alternating Current			Direct Current		
Cat. No.	Voltage	List Price	Cat. No.	Voltage	List Price
8175-110V	110V	**$40.00**	**8176-110V**	110V	**$42.50**
8175-220V	220V	**45.00**	**8176-250V**	250V	**47.50**

With Double-Bell Type Projector

8180-110V	110V	**$42.50**	**8181-110V**	110V	**$45.00**
8180-220V	220V	**47.50**	**8181-250V**	250V	**50.00**

Schedule 10 Discounts Apply.



Relay for Panel Mounting

Benjamin TELECODE Relays

Listed by Underwriters' Laboratories

In factories, mines, quarries, foundries, machine shops, etc., where there is a great volume of noise, the ordinary telephone bell can seldom be heard. With the aid of the Telecode Relay it is possible to utilize Benjamin Industrial Howlers on any type of telephone system. Telephone efficiency is not affected.

Mechanism—The contacts on the Benjamin Telecode Relay are of tungsten for long service, while the coils are form wound, with moisture-proof coverings and carefully impregnated. The relay is equipped with two shading coils which insure quiet operation and prevent fluttering.

Open, Closed and Locking Types—Telecode Relays are supplied with contacts arranged for open circuits (contacts open until coil is energized); with contacts arranged for closed circuits (contacts closed until the relay is actuated by current flowing through the coils) and with locking armatures (special winding on coils locks the contacts when the relay is operated, giving continuous operation to signals until signal circuit is broken by a release switch).

Finish—Outside finish of all units is battleship gray enamel.

Condenser rated 2 mf. Condenser only is **No. 8327,** List Price, **$4.00.**

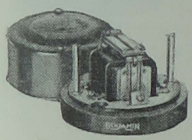
Electrical Characteristics

Contact Capacity—Relays are rated .8 ampere at 110 volts, sufficient to operate five vibrating type howlers.

Coil Data—Standard coil windings are 1000 ohms for operation on 110-volt, 60-cycle A.C., or 18-volt D.C. circuits. For ringing circuits of standard telephone systems, relays should have same coil resistance as the bells of the circuit. In ordering, specify bell resistance or voltage and frequency of ringing circuit.

Extra charge of **$0.50** for special resistance windings.

FOR PANEL MOUNTING

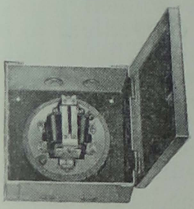


For Panel Mounting

These relays have a bakelite base 4½ inches in diameter, with two mounting screw holes spaced on 3½-inch centers.

Cat. No.	Less Condenser List Price	Description
8313-P	**$12.00**	Open Circuit
8313-C	**12.00**	Closed Circuit
8313-L	**13.50**	Locking Armature

WITH PRESSED STEEL BOX



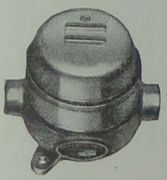
With Pressed Steel Box

The hinged cover box supplied with these relays is 6" x 6" x 3" in size with ½-inch knockouts on all four sides.

LESS CONDENSER		Description	WITH CONDENSER	
Cat. No.	List Price		Cat. No.	List Price
8315-P	**$12.00**	Open Circuit	**8316-P**	**$16.00**
8315-C	**12.00**	Closed Circuit	....	....
8315-L	**13.50**	Locking Armature	**8316-L**	**17.50**

WITH EXPLOSION-PROOF BOX

Suitable for Installation in Class I, Group D; Class II, Group G; Classes III and IV Hazardous Locations

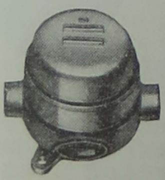


With Explosion-Proof Box

The main section of the explosion-proof box supplied with these relays is 5½ inches in diameter and is regularly tapped ½-inch straight through standard; ¾-inch, when specified, at same price.

Cat. No.	List Price	Description	Cat. No.	List Price
8319-P	**$16.00**	Open Circuit	**8320-P**	**$20.00**
8319-C	**16.00**	Closed Circuit	....	....
8319-L	**17.50**	Locking Armature	**8320-L**	**21.50**

WITH WATER-TIGHT BOX

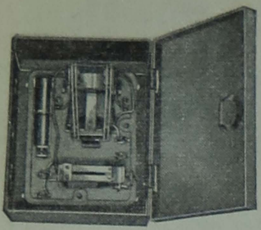


With Water-Tight Box

The main section of the water-tight box supplied with these relays is 5½ inches in diameter and is regularly tapped ½-inch straight through standard; ¾-inch, when specified, at same price.

Cat. No.	List Price	Description	Cat. No.	List Price
8322-P	**$14.50**	Open Circuit	**8323-P**	**$18.50**
8322-C	**14.50**	Closed Circuit	....	....
8322-L	**16.00**	Locking Armature	**8323-L**	**20.00**

BENJAMIN SUPER-SENSITIVE RELAY



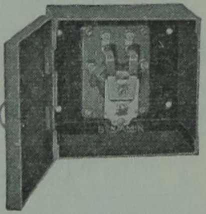
Recommended especially for operation on ringing current of telephone lines in all locations where it is necessary to use extension signals in connection with long communications systems. This device is extremely sensitive and responds to exceptionally weak impulses of low frequency alternating current telephone ringer circuits and operates loud sounding extension signals.

Relay mechanism is mounted on a white porcelain insulating base. Available with or without battleship gray enameled steel box 6 x 8 x 4 inches with ½-inch knockouts.

Relay may be used on lines having 1000 to 2500 ohm relays or ringers, and will operate over a voltage range of 8 to 135 volts, 18 to 30 cycles A.C., but will not respond to a higher frequency. Contact capacity one ampere at 110 volts; or 110 watts at other voltages. The secondary circuit requires 6 volts, 2 amperes D.C. The delay relay operates on D.C. only and will be wound to operate on higher than 6 volts if specified, at no advance in list.

Cat. No.	Description	Shpg. Wt. Lbs.	List Price
8330	With Steel Knockout Box	13	**$28.00**
8331	Complete Less Box	8½	**26.00**

BENJAMIN MASTER RELAY



For use with a Coding Device in operating the signaling systems where the connected load is in excess of the rated capacity of the Coding Device, or where it is not desired to have the Coding Device wired into the high-voltage signal circuit.

The relay is unusually rugged and sturdy with large contacts. The contacts have a non-inductive rating of 110 volts of 30 amperes AC and 6 amperes DC; at 220 volts 20 amperes AC and 3 amperes DC. The coil is rated at approximately 8 watts and operates at plus or minus 15 per cent of rated voltages.

The relay is available in following standard voltages: 110 volts AC, 60 cycles; 18 volts AC, 60 cycles. The 110 volt AC relay operates at 15 to 30 volts DC, and 18 volts AC relay operates at from 4 to 6 volts DC.

Relay is front connected and is mounted on a base of high insulating molded composition. Relay must be mounted in a vertical position. Steel box supplied with Cat. No. 8336 is 6x6x4 inches with ½ and ¾-inch knockouts. Finish is crackle lacquer.

Cat. No.	Description	Shpg. Wt. Lbs. Each	List Price
8335	Complete Less Box	5½	**$12.00**
8336	With Steel Knockout Box	7	**15.50**

Schedule 10 Discounts Apply.

BENJAMIN HEAVY DUTY HIGH VOLTAGE PUSH BUTTONS

Listed by Underwriters' Laboratories
5 Amperes, 125 Volts

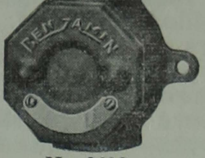
These Buttons have quick make-and-break mechanism, positive acting, mounted on base of high heat molded insulating material for use with circuits carrying inductive loads.

Buttons are not affected by immersion in water as all joints are water tight.

Finish—Dead black.

NON-LOCKING TYPE—WATER TIGHT

Single Button

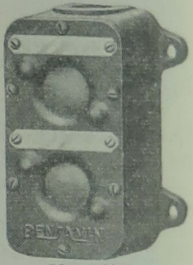


No. 8493

Construction — Brass casing, with two mounting lugs, and one end boss which is tapped ½ inch. Casing will be tapped for ½ or ¾ inch pipe one way or two way if specified, without extra charge.

Cat. No.	Description	Net Wt. Lbs., Each	List Price
8493	Open Circuit Type	2	**$3.60**
8874	Closed Circuit Type	2	**3.60**

TWO GANG, NON-LOCKING TYPE WATER TIGHT

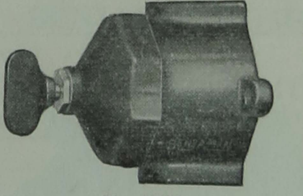


No. 8495

Construction — Brass casing with four mounting lugs and one end boss tapped ½-inch. Casing will be tapped ½- or ¾-inch pipe size one or two way, if specified, at same price. Name plates are unmarked and regularly positioned as shown in illustration. Specify position of name plates in relation to conduit entrance.

Cat. No.	Description	Net Wt. Lbs. Ea.	List Price
8495	Open Circuit Both Buttons	3	**$5.00**
8884	Open Circuit One Button Closed Circuit One Button	3	**5.00**

LOCKING TYPE—WATER TIGHT



No. 8734

The rugged and sturdy construction together with the large winged plunger which is convenient to the heavily gloved hand, makes this device particularly adaptable for use on locomotives, in round houses and mines.

Construction—Brass casing, with two mounting lugs, and one end boss which is tapped ½ inch. Casing will be tapped for ½ or ¾ inch pipe one way or two way if specified, without extra charge. Cover is supplied with water tight stuffing box for plunger key.

Cat. No.	Description	Net Wt. Lbs., Each	List Price
8733	Closed Circuit Type	2	**$4.00**
8734	Open Circuit Type	2	**4.00**

NON-WATER TIGHT HIGH VOLTAGE PUSH BUTTONS

No. 8465

Construction — Brass casing, with two mounting lugs, and boss which is tapped for ½ inch conduit one way, side or rear entrance as indicated below. Side entrance casing will be tapped ½ or ¾ inch one way or two way, if specified. Brass cover is threaded for connection to casing. Finish — Dead black.

Cat. No.	Description	Entrance	Net Wt. Lbs., Ea.	List Price
8465	Open Circuit Type	Side	2	**$3.00**
8413	Open Circuit Type	Rear	2	**3.00**

When ordering, specify size and number of conduit tappings required.

Schedule 10 Discounts Apply.

BENJAMIN SIGNALING EQUIPMENT

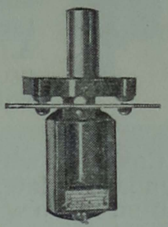
SINGLE STROKE BELLS AND CHIMES

For Series or Multiple Operation

Listed by Underwriters' Laboratories, Inc

3-Inch Bell

8-Inch Bell



Chime

Benjamin Single Stroke Bells and Chimes are simple in design and positive in operation. The mechanism is of the solenoid type with only one moving part, the plunger, which responds instantly when the coil is energized. This type of construction practically eliminates maintenance costs and assures operation with a minimum current consumption.

The tone volume of both bells and chimes is adjustable. Soft, medium or loud tones may be obtained by turning the set screw at the bottom, which regulates the plunger stroke.

Installation is simplified by a special mounting plate which provides a means of direct attachment to Gem Type Outlet Boxes or to any switch or outlet box cover having mounting holes space on 3$\frac{3}{32}$ inch centers. In installation, the mounting plate is first attached to the outlet box or cover by two screws. The wires are then brought through the large center hole in the plate, and looped around the binding screws, which are easily accessible with ample space for wiring. After wiring, the device is securely attached by two screws threading into the mounting plate.

The plunger is of magnetic iron with a bakelite tube. The magnet coil is layer wound, impregnated. The chimes are identical in construction to the bells except that a metal chime bar with a metal resonating chamber is provided in place of a gong. Bell housings are cast iron. Bells are highly polished; housings are battle-ship gray. Housings for chimes are cast iron, finished in crackle lacquer. Chime bar and resonating chamber are chromium plated.

	†24 Volts		†110 Volts		†220 Volts	
Description	Cat. No.	List Price	Cat. No.	List Price	Cat. No.	List Price
3″ Bell A.C.*	8110	$9.15	8110	$11.65	8110	$13.75
3″ Bell D.C.	8111	9.15	8111	11.65	8111	13.75
4″ Bell A.C.*	8112	10.00	8112	12.50	8112	14.60
4″ Bell D.C.	8113	10.00	8113	12.50	8113	14.60
6″ Bell A.C.*	8115	12.50	8115	15.85	8115	17.90
6″ Bell D.C.	8116	12.50	8116	15.85	8116	17.90
8″ Bell A.C.*	8117	15.85	8117	19.15	8117	21.25
8″ Bell D.C.	8118	15.85	8118	19.15	8118	21.25
Chime A.C.*	....	....	8120††	18.00	8120	20.00
Chime D.C.	....	....	8121	18.00	8121	20.00

* 60 cycles standard; when specified, 25 cycle bells and chimes, in all voltages, supplied at same price.

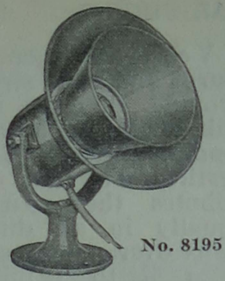
†Bells up to 48 volts take 24-volt prices, from 48 to 110 volts take 110 volt prices and bells and chimes over 110 volts take 220 volt prices.

††Chimes up to 110 volts take 110 volt prices.

For series operation, prices are determined by dividing full line voltage by number of signals in circuit to find voltage of each signal.

Schedule 10 Discounts Apply.

BENJAMIN INDUSTRIAL SIRENS



No. 8195

No. 8196

Benjamin Non-Coding Siren is widely used as a fire-alarm, burglar alarm, hours-of-work signal, trouble indicator, etc. The Coding Siren is especially recommended for code-calling installations in steel fabricating and boiler shops, etc. It is also widely used for coding the location of fires. This siren can be coded at practically any speed and can be operated by a push button or automatic calling device.

Electrical Characteristics—These Benjamin Industrial Sirens are operated by powerful heavy duty motors of universal type which are standard for 110 Volts, A.C. or D.C. The following special voltages can be furnished without extra charge: Catalog No. 8195, from 6 to 250 Volts, A.C. or D.C.; Catalog No. 8196, for 220 or 250 Volts, A.C. or D.C. The power consumption of the non-coding siren is 150 Watts. The coding siren requires an additional 75 Watts to operate the solenoid.

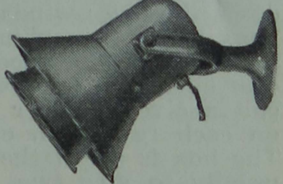
Finish is red enamel.

Cat. No.	Description	Std. Voltage A.C. or D.C.	List Price
8195	Not arranged for coding	110-Volts	**$59.90**
8196	Arranged for coding......	110 Volts	**110.00**

Schedule 10 Discounts Apply.

FEDERAL ELECTRIC SIRENS

TYPES "A" AND "D" SIRENS



Type A Standard Siren

An excellent signal wherever electricity is available. High speed ⅓ horsepower grease sealed ball bearing motor produces powerful tone. Entire assembly is protected by weatherproof housing. Equipped with swivel bracket for any mounting. Length overall 17 inches, horn diameter 10 inches. Any specified voltage from 6 to 250 A.C. or D.C. Shipping weight 15 pounds.

Price, Standard Type A Siren................each **$40.00**

The Type D Siren is similar in general to the Type A, but is equipped with ½ h.p. motor and has a deeper tone. Length overall, 19 inches; diameter horn, 9½ inches; shipping weight, 17 lbs.

Price, Standard Type D Siren................each **$45.00**

Price, Code Type A Siren for short, sharp code signals ....each **75.00**

VEHICLE SIRENS

A complete line of powerful sirens, with or without flashing lights for fire apparatus, ambulances, police cars, and other emergency vehicles, ranging in price from **$15.00** to **$110.00.** Write for complete literature.

COMPRESSED AIR WHISTLES

Fifteen types of whistles and valves for manual or electric operation. Ask for complete literature.

FEDERAL ELECTRIC SIRENS

FEDERAL VERTICAL SIRENS

5 H.P. Federal Siren

Vertical general alarm and code sirens provide effective signals for industries and municipalities. The vertical design distributes the sound equally in all directions over a radius of from ¾ to 3 miles. Grease sealed ball bearings and heavy duty construction assure maximum durability and performance. The heavy galvanized sheet metal housing makes the siren completely weatherproof but does not muffle tone.

Large sirens should be operated through a remote control to which any number of push buttons, or pull lever boxes may be connected.

Siren No.	H.P.	Volts	Motor Current	Cycles	Phase	Shpg. Wt.	Price Each
1	1	110	Univ.	Any	1	70	$150.00
2	2	110–220	Univ.	Any	1	90	215.00
3	3	220–440	AC	60	3	385	315.00
3	3	220	AC	60	1	450	330.00
5	5	220–440	AC	60	3	485	360.00
5	5	220	AC	60	1	505	395.00
7	7½	220–440	AC	60	3	515	400.00
7	7½	220	AC	60	1	525	435.00

FIRE ALARM BOXES (Pull Lever Type)

FIRE
ALARM
OPEN DOOR
PULL HOOK
FEDERAL ELECTRIC COMPANY
CHICAGO NEW YORK

General Fire Alarm Box. Pull Lever Type

The Federal Fire Alarm Box automatically sounds the siren up and down the scale a predetermined number of times and then cuts out at the conclusion of the alarm. Pulling down the lever winds a clockwork mechanism which rotates a cam (or code wheel). This cam opens and closes the circuit a given number of times on each revolution or round. The box is set at the factory, usually to give two or three blasts per round. It may be quickly adjusted in the field to repeat this signal two, three, or four times, as desired. Special signals can be blown by use of the telegraph key in the box.

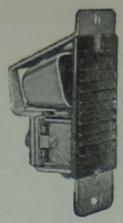
Where fire alarm boxes are to be mounted outside, exposed to the weather, it is recommended that they be installed in weatherproof break glass boxes.

Controls

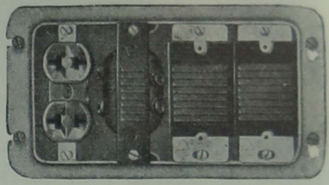
Description	
Remote Control for No. 1 Siren	$15.00
Remote Control for No. 2 Siren	20.00
Remote Control for No. 3 Siren	30.00
Remote Control for No. 5 or No. 7 Siren	40.00
Push Button Switches (either type)	5.00
Push Button in break glass weatherproof box	15.00
Fire Alarm Box (as illustrated)	35.00
Fire Alarm Box (aluminum weatherproof box)	50.00
Standard General Alarm Control	40.00
Predetermined (auto. stop) G. A. Control	50.00

Specify voltage and type of current in ordering Controls.

EDWARDS FLUSHCALL LINE



A modernized line of devices to replace old-fashioned doorbells, buzzers, combinations, transformers, and push buttons. Each device fits standard switch boxes, outlet boxes and fittings and takes standard toggle or receptacle plates. No-contact design for A.C. only, assuring indefinite life with no adjustment needed. Can be ganged with switches, receptacles, etc.



Covered with neat standard plate, illustration shows residence or apartment "one spot" method, instead of transformer in cellar, bells high on wall and convenience outlet low on wall. Transformer takes power from same line as receptacle. Because of depth of Powacall transformer, this combination uses 2½-inch deep box. See description of Powacall below. 24 volts should be used where quantity of devices is to be operated in multiple at once.

The Ringcall

Flush bell with better tone and more carrying power.

Schedule E 8-10 V. A.C.			Schedule T 24 V. A.C.		
Cat. No.	Std. Pkg.	Price Each	Cat. No.	Std. Pkg.	Price Each
660	20	$0.82	760	1	$1.06

The Buzacall

Flush buzzer with better tone and more carrying power. Over 100% variation in tone possible.

Schedule E 8-10 V. A.C.			Schedule T 24 V. A.C.		
Cat. No.	Std. Pkg.	Price Each	Cat. No.	Std. Pkg.	Price Each
661	20	$0.78	761	1	$1.00

The Tucall

Flush combination bell and buzzer.

Schedule E 8-10 V. A.C.			Schedule T 24 V. A.C.		
Cat. No.	Std. Pkg.	Price Each	Cat. No.	Std. Pkg.	Price Each
662	20	$1.16	762	1	$1.54

The Melocall

Soft single stroke for third signal, dining room-kitchen call, and similar uses.

Schedule E 8-10 V. A.C.			Schedule T 24 V. A.C.		
Cat. No.	Std. Pkg.	Price Each	Cat. No.	Std. Pkg.	Price Each
663	10	$0.96	763	1	$1.30

No. 666 Powacall

Flush transformer. Fits in second gang of standard 2½-inch deep box with other Flushcall devices, described above. Acts as barrier for either outlet or switch box. Underwriters' approved.

Schedule E

Cat. No.	Description	Std. Pkg.	Price Each
666	115 V., 60 Cy., Primary—8 V. Sec.	20	$0.90

No. 667 115 V., 60 Cy., Primary—14 V. Sec.

No. 664 Togelpush

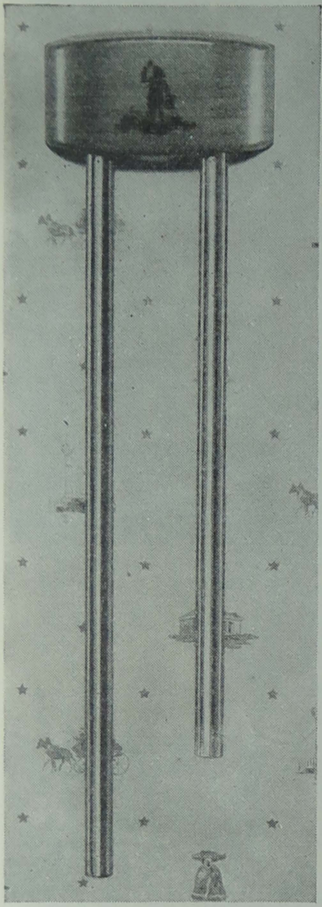
Fits any standard box, takes standard toggle plate.

Schedule E

Cat. No.	Description	Std. Pkg.	Price Each
664	The Togelpush	20	$0.20

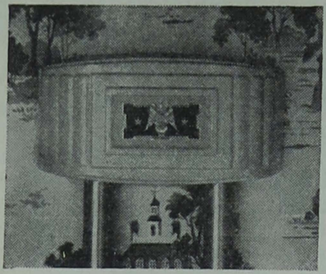
EDWARDS CHIMES

Here is a partial listing of the most complete line of authentically styled door chimes. Created by America's foremost designer, there is an Edwards Chime for every architectural and decorative need. Each chime is available in one and two entrance types. Both types have two harmony sequence notes and two entrance models have an added vibrant note for rear door or service signal. A special transformer is furnished with each chime except as noted.



The Early American model illustrated above has an old Pine finish with gay Black silhouette of Town Crier. Tubes are polished brass.

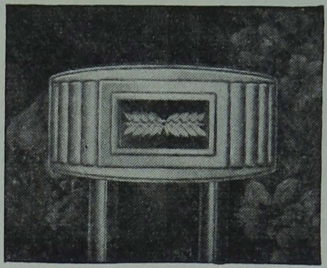
520	Two Entrance	$9.00
521	Single Entrance	8.00



FEDERAL

Case is dull light Ivory finish with Brass Colonial Eagle and Star on Blue ground center. Polished Brass tubes.

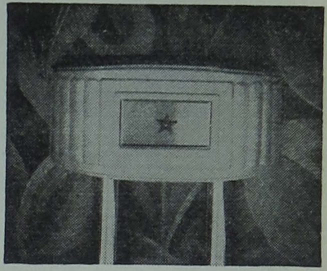
580	Two Entrance Type	$8.00
581	Single Entrance Type	7.00



REGENCY

Dull light Ivory Case with Laurel ornament on dull Brass ground. Tubes polished Brass. Available also with dull Black case.

544	Ivory, Two Ent.	$9.00
545	Ivory, Single Ent.	8.00
546	Black, Two Ent.	9.00
547	Black, Single Ent.	8.00



MODERNE

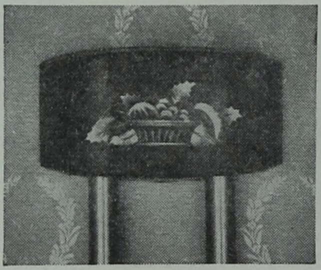
For interiors where chrome tubes and motif are most harmonious.

White Shield and Chrome Tubes

582	Two Entrance Type	$10.00
583	Single Entrance Type	9.00

Black Shield and Chrome Tubes

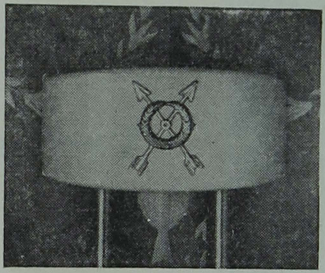
528	Two Entrance Type	$10.00
529	Single Entrance Type	9.00



EMPIRE

Case has an Old Mahogany finish with Black and Gold Fruit Basket Decoration. Tubes are polished Brass.

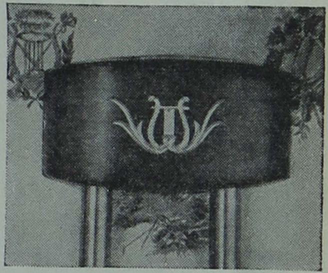
526	Two Entrance Type	$9.00
527	Single Entrance Type	8.00



GEORGIAN

Sprayed Wreath and Arrow casting is mounted on dull light Ivory case. Tubes are polished Brass. Ideal complement for fine Sheraton furniture.

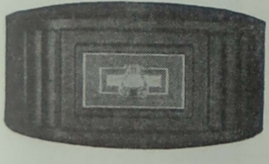
536	Two Ent. Type	$9.00
537	Single Ent. Type	8.00



DUNCAN PHYFE

Case has Red Mahogany grained finish. Cast Lyre ornament, sprayed Brass. Polished Brass tubes.

524	Two Entrance Type	$9.00
525	Single Entrance Type	8.00

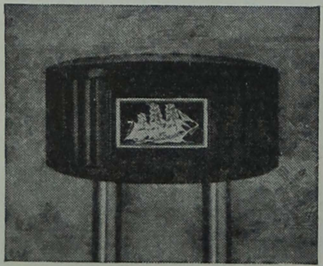


Bronze

JUNIOR CHIMES

Junior Chimes have enclosed bars instead of tubes. One and two entrance types. Prices do not include transformer.

590	Ivory, Two Ent.	$3.95
591	Ivory, Single Ent.	2.95
555	Black, Two Ent.	3.95
556	Black, Single Ent.	2.95
558	Bronze, Two Ent.	3.95
559	Bronze, Single Ent.	2.95



CAPE COD

Dull Black with bright Brass Clipper Ship insert in center panel. Polished Brass tubes.

522	Two Entrance Type	$8.00
523	Single Entrance Type	7.00

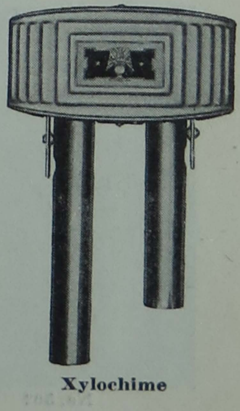
XYLOCHIMES

Louder than Junior Chimes but not as loud as Tubular Chimes. Transformer furnished with each chime.

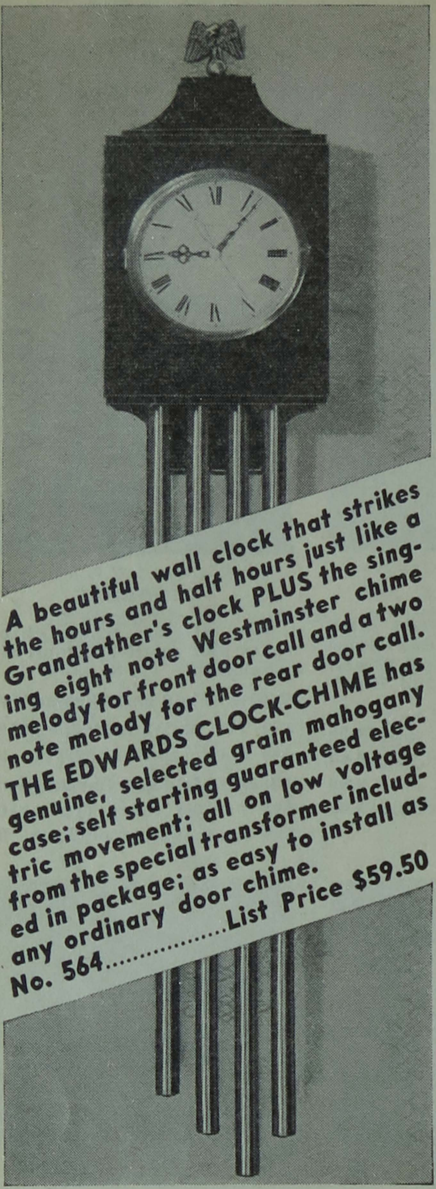
Utilizing bars instead of tubes with resonators to amplify sound.

Ivory with Brushed Brass

No. 588	Two Entrance Type	$7.00
No. 589	Single Entrance Type	6.25



Xylochime



A beautiful wall clock that strikes the hours and half hours just like a Grandfather's clock PLUS the singing eight note Westminster chime melody for front door call and a two note melody for the rear door call. THE EDWARDS CLOCK-CHIME has genuine, selected grain mahogany case; self starting guaranteed electric movement; all on low voltage from the special transformer included in package; as easy to install as any ordinary door chime.

No. 564..........List Price $59.50

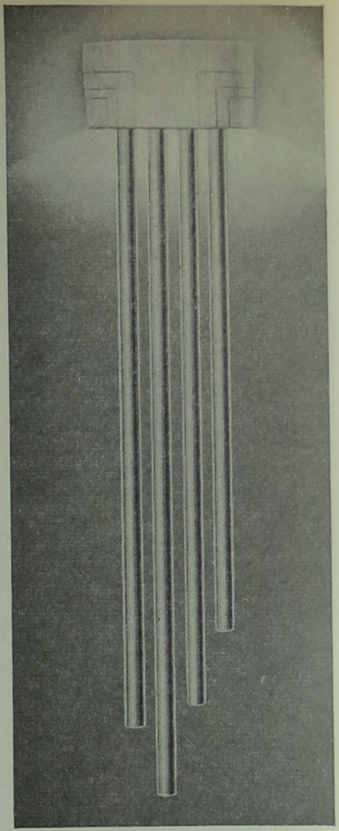
Overall 69" H., 10¾" W., 6" D.

EDWARDS CHIMES

A beautifully designed plastic shield having a rich translucent marblelike finish in contrasting Ivory Shades. Night light is provided with both models. The translucent shield imparts a soft tone to the light, making it ideal for night hallway illumination. Light switch is provided on base. Also available in black opaque marblelike shield so light is thrown downward only over tubes. Add letter B to catalog number for Black shield.

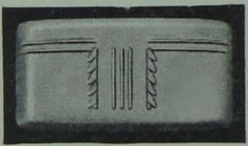
The four tube Westminster model plays the popular eight note melody of that name. Provisions are made for additional two note sequence and a single note. The three tube Milan is similar to the Westminster except that a different seven note melody is played instead of an eight note melody. Tubes are Brushed Brass, lacquered. Over-sized tubes are used on these two models to provide deeper and more resonant notes.

No. 573	3-Tube Milan	$25.00
No. 574	4-Tube Westminster	29.50



Overall Size No. 573
46¼" H., 10½" W., 4⅜" D.
Overall Size No. 574
55½" H., 10½" W., 4⅜" D.

The Leader Line for Economy



No. 577 — $0.69

Single Note, Single Entrance. Fully Enclosed Bar. Ivory Finish.

Low-priced chime of neat design. While they offer far more than the ordinary "bargain type" chimes, they are not to be compared with the Styled Lined.

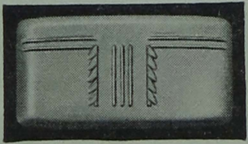
LONG TUBE TYPES

Two sequence notes for one entrance. Added single note for two entrance types. Tubes are brushed brass, lacquered.

534	Bronze, Two Ent.	$3.69
535	Bronze, One Ent.	3.59
568	Ivory, Two Ent.	3.69
569	Ivory, One Ent.	3.59

With silent middle tube for appearance. Otherwise same as above.

534-3	Bronze	$4.69
535-3	Bronze	4.59
568-3	Ivory	4.69
569-3	Ivory	4.59

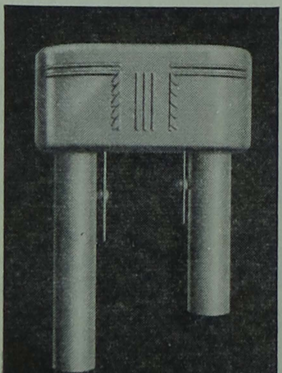


No. 553 or 554

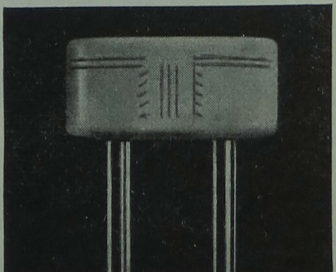
No. 553 — Single entrance type. Two sequence notes. Fully enclosed bars. Ivory finish..........$0.98

No. 554 — Two entrance type. Two sequence notes for front door, single note for rear door. Fully enclosed bars. Ivory finish......$1.39

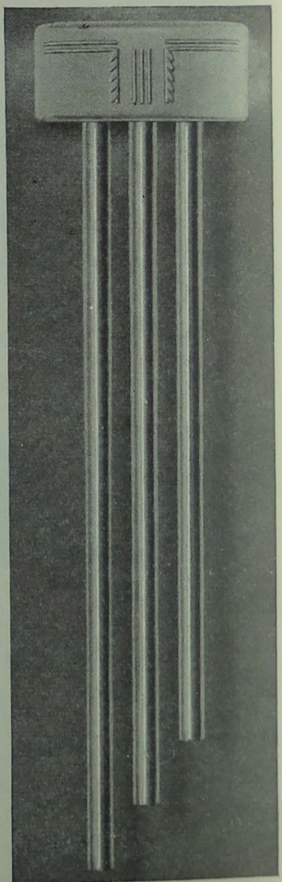
No. 502 — Short Tube Type — Two entrance type. Two sequence notes for front door, one note for rear door. Ivory tubes and shield. Price..........$2.95



No. 502



No. 568



No. 568-3

EDWARDS STREAMLINED DOORBELLS AND BUZZERS

Schedule E

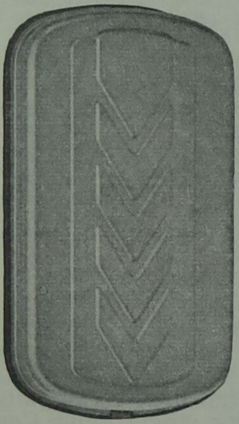
Beautifully streamlined for standard, modern appearance. Aluminized or Chrome finishes are lasting and harmonize with any wall color. All bell movements have straight hammer rods and solid hammer balls, giving more power and smoother action on battery or transformer.

Large magnets, correctly designed phosphor-bronze springs, silver contacts and fine workmanship make these the finest, low-cost bells ever produced.

The small buzzers have unusually powerful mechanisms and are adaptable for a multitude of uses. Fully insulated, they are ideal for mounting on metal desks, metal frames, etc. Large magnets, correctly designed, phosphor-bronze springs, silver contacts, make these fully enclosed buzzers a perfect complement to the new line of doorbells.

Listed below is a variety of adaptions from the regular line of Iron Box Bells and Buzzers.

COVERED BELLS AND COMBINATIONS



Fully enclosed bell or combination.
Chrome or Aluminized finishes.
Only 5¼ inches long, 3 inches wide, 1 inch deep.

The Cadet Bell

Adjustable

Cat. No.	Finish	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each *Standard	Price Each †Special
710	Chrome	20	10¼	$0.80	$2.10

The Dixie Bell

Non-adjustable

Cat. No.	Finish	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each *Standard	Price Each †Special
720	Aluminized	50	25	.44	....
721	Chrome	20	10¼	.54	....

The Buzabel

Non-adjustable-combination

Cat. No.	Finish	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each *Standard	Price Each †Special
730	Aluminized	50	26	.70	....
731	Chrome	20	10½	.80	....

*8-10 volts, A.C., 6-8 volts, D.C. †For special voltages or resistances up to 24 V. Specify exactly when ordering.

EDWARDS STREAMLINED DOORBELLS AND BUZZERS

Schedule E

COVERED BUZZERS

Fully enclosed buzzer.
Chrome or Aluminized finishes.
Only 2¾ inches long by 1¾ inches wide.

The Cadet Buzzer

Adjustable—Fully Insulated

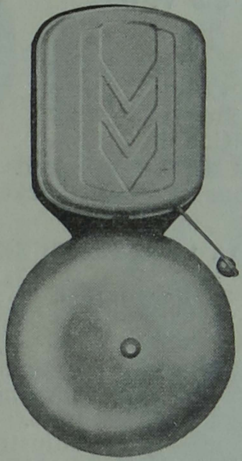
Cat. No.	Finish	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each *Standard	Price Each †Special
715	Chrome	20	4	$0.76	$2.06

The Dixie Buzzer

Non-adjustable

Cat. No.	Finish	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each *Standard	Price Each †Special
725	Aluminized	100	21	.36	....
726	Chrome	50	10½	.42	....

ENCLOSED BINDING POST TYPES



Enclosed binding post types available in a variety of sizes and special gongs. Aluminized bases and gongs.

The Nubel

Non-adjustable

Cat. No.	Type	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each *Standard	Price Each †Special
‡740	Aluminized	100	37	$0.38	....

The Commercial Line

Conventional Type—Non-adjustable—Single Coil

Cat. No.	Type	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each *Standard	Price Each †Special
‡728	Gray	100	30	.34	....
§729	Gray	100	17½	.32	....

Large and Fancy Type Bells

Aluminized—Adjustable

Cat. No.	Type	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each *Standard	Price Each †Special
712	3 in.	10	6	.94	2.24
714	4 in.	10	8	1.22	2.52
716	Cow Gong	10	6	1.46	2.76
717	Sleigh Gong	10	5½	1.46	2.76

Nos. 716 and 717 may be assorted to make up a standard package of 10.

Large and Fancy Type Bells

Non-adjustable

Cat. No.	Type	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each *Standard	Price Each †Special
743	3 in.	10	5	.54	....
744	4 in.	10	7	.70	....
745	Cow Gong	10	5	1.08	....
746	Sleigh Gong	10	4	1.08	....

Nos. 745 and 746 may be assorted to make up a standard package of 10.

*8-10 Volts, A.C., 6-8 Volts, D.C. †For special voltages or resistances up to 24 V. Specify exactly when ordering. ‡2½ in. gong. §Buzzer.

EDWARDS BELLS AND BUZZERS

NO. 156 MONITOR BELL

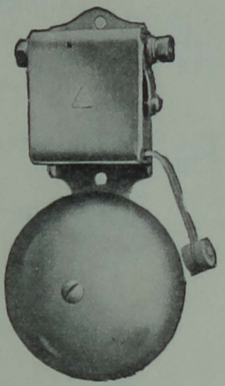
Schedule T

An entirely self-contained bell of neat appearance. The hammer-rod moves on a straight line and strikes the inside of the gong. This allows the bell to be made weather, bug and dust proof. Springs are of phosphor bronze, the contacts pure hard drawn silver. Has 3-inch gong, nickel, base finished black.

Price, No. 156..each **$1.80**

NO. 13 LUNGEN BELLS

Schedule E



Lungen bells are the same construction as Lungen buzzers. Finish polished chrome. Phosphor-bronze springs. Contacts pure hard-drawn silver, and double locking adjustment.

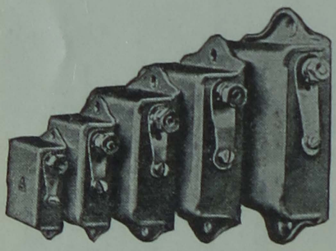
8-10 V. A.C., 6-8 V. D.C.

Size In.	Price Each	Size In.	Price Each
1	**$2.40**	4	**$3.20**
1¾	**2.20**	Cow	**3.20**
2½	**2.30**	Sleigh	**3.20**
3	**2.40**	D.C. only	-------

Assortment of 10 Lungen bells or buzzers, or both, to make one standard package.

NO. 15 LUNGEN BUZZERS

Schedule E



Made in 5 sizes, varying in volume and tone. Double locking adjustment, pivoted armature, hard-drawn silver contacts. Phosphor-bronze springs Cadmium finish.

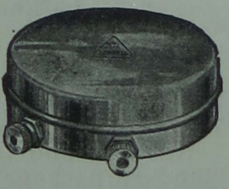
8-10 V. A.C., 6-8 V. D.C.

Size No.	Dimens. In.	Price Each	Size No.	Dimens In.	Price Each
0	1⅝x1⅛	**$1.90**	3	3 x2	**$2.00**
1	2⅛x1$\frac{5}{16}$	**1.80**	4	3½x2¼	**2.70**
2	2$\frac{9}{16}$x1¾	**1.90**	..	....	....

Assortment of 10 Lungen bells or buzzers, or both, to make one standard package.

NO. 750 BRONX WATCHCASE BUZZER

Schedule E



Small round buzzer, entirely self-contained. The Cover fits tightly, making it weather, bug and dust proof. Springs are phosphor bronze; contacts, hard drawn silver. Standard finish, nickel.

Cat. No.	Diam. Inches	Volts	Std. Pkg.	Price Each
750	⅝x1¾	6–8	10	**$1.80**

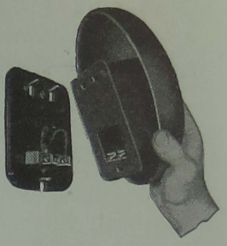
EDWARDS ADAPTABELS

Schedule T

VIBRATING AND SINGLE STROKE TYPES

All A.C. and D.C. Voltages

EDWARDS
ADAPTABEL



Finest quality bell for all uses. Back plate easily hung on wall or all types switch, octagon and square boxes, Wiremold, Condulets, etc. Wire connected direct to plate. Bell then hung on strong lugs and pushed home with sturdy spring contacts making electrical connection and holding it permanently in place. Set screw at bottom locks it in place if desired. The A.C. vibrating mechanism is the polarized no contact type. The D.C. vibrating mechanism is also of the straight line plunger type. Single stroke types are of solenoid design. All gongs are hot pressed steel, Parkerized to prevent rust. Weatherproof if specified.

Vibrating Types—No. 560 A.C. or No. 561 D.C.

Size Inches	A.C. †8-30 V. No. 560 D.C. 6-9 V. No. 561	A.C. 110-130 V. No. 560 D.C. 110-130 V. No. 561	A.C. 220-240 V. No. 560 D.C. 220-240 V. No. 561
3	**$11.00**	**$14.00**	....
4	**12.00**	**15.00**	....
6	**15.00**	**19.00**	**$21.50**
8	**19.00**	**23.00**	**25.50**
10	**30.00**	**35.00**	**37.50**
12	**38.00**	**43.00**	**45.50**

†Standard bells, unless otherwise specified, are for 12-18-volt operation. No extra charge for bells to operate on 8 volts or up to 30 volts, but the exact voltage and cycles must be specified.

Single Stroke Types—No. 562 A.C. or No. 563 D.C.

Same construction as described for Vibrating Adaptabels. All 6 to 12-inch Single Stroke Adaptabels mount directly on wall or 4-inch square box, or standard switch box, or any single gang switch cover, or on any single gang Condulet or Wiremold type fitting. All 4-inch Single Stroke Adaptabels are furnished with special wall boxes because of small size base.

Specify exact voltage whether for series or multiple operation. Standard — non-weatherproof. Fully weatherproof, if specified at no extra charge.

Size Inches	A.C. 10-48 V. No. 562 D.C. 10-48 V. No. 563	A.C. 110-130 V. No. 562 D.C. 110-130 V. No. 563	A.C. 220-240 V. No. 562 D.C. 220-240 V. No. 563
4	**$12.00**	**$15.00**	**$17.50**
6	**15.00**	**19.00**	**21.50**
8	**19.00**	**23.00**	**25.50**
10	**30.00**	**35.00**	**37.50**
12	**38.00**	**43.00**	**45.50**

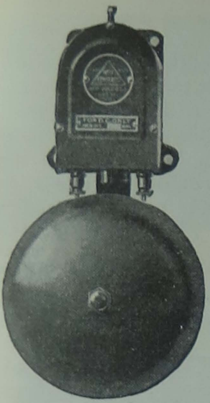
CAST METAL COW GONGS

For all types of bells. Same Schedule as bell on which it is used.

Size of Cow Gong Inches	Size of Regular Gong For Which Substituted	Add to List Price of Bell
2 x3	3	**$2.50**
3⅛x5	6	**5.00**
4¼x6	8	**10.00**

EDWARDS BELLS AND BUZZERS

NO. 100 D.C. RECTI BELLS



220A
Recti Buzzer

The Recti is a standard Edwards bell which has for years withstood the test of time and hard service. It is absolutely dependable and may be relied upon to give satisfactory service under most extreme operating conditions. The movement is what is known as the straight line or plunger type and its design is an exclusive feature developed by this company over forty years ago.

Adjustment is easily made, without removing the cover, by a heavy screw and lock nut at the end of the case. Case is of iron, heavily japanned and provided with a flat gasket, oil treated. The gong is of bell metal, finished black to match the case.

No. 220A Recti buzzers have the same movement and features as the Recti bell, 3-inch movement.

No. 220B Recti Buzzers have the same movement and features as the Recti bell, 6-inch movement.

Size Inches	Wt. Lbs. Each	Price Each Cat. No. 100 6-9V. DC.	Cat. No. 100U 110-130V. DC.	Cat.No. 100U 220-240V DC
3	3	$11.00	$14.00	....
4	3	12.00	15.00	$17.50
6	6	15.00	19.00	21.50
8	9	19.00	23.00	25.50
10	13½	30.00	35.00	37.50
12	17⅛	38.00	43.00	45.50
14	24	61.60	82.50	103.50
16	32	129.30	159.20	189.10
18	42	146.95	176.90	206.80
220A	2	10.00	13.00	....
220B	4	11.90	17.95	24.10

Conduit Attachment—No. 1001

For use on all type bells add to list................**$10.00**

Full Grid Type—No. 100FG

Add to Standard Bell as follows:

Size Inches	Wt. Lbs. Each	Price Each	Size Inches	Wt. Lbs. Each	Price Each
4	⅓	$4.30	12	2½	$12.00
6	¾	8.00	14	4	24.70
8	1	9.00	16	5½	35.00
10	2	10.00	18	6½	45.00

Part Grid Type—No. 100PG

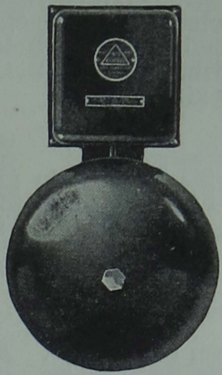
Same price as Full Grid Type.

No. 100Y Yard Type, with protective hood: Add to standard bell **$25.00** list.

EDWARDS BELLS AND BUZZERS

POLARIZED VIBRATING BELLS

For Transformer and A. C. Lighting Circuits



This type bell is so designed as to eliminate contacts and contact springs by the introduction of a permanent magnet. Because of the absence of contacts, there is no sparking; and these bells are often specified in mines, schools, etc., for this feature.

Each bell is drilled top and bottom for ½-inch conduit, and furnished with a plug that can be screwed in the hole not used.

No. 551 Single Gong Type

Size In.	Approx. Wt. Lbs.	Price Each †8 to 30 Volts, A.C.	110 to 130 Volts, A.C.	220 to 240 Volts, A.C.
3	1¼	$11.00	$14.00	$16.50
4	1½	12.00	15.00	17.50
6	3⅝	15.00	19.00	21.50
8	10	19.00	23.00	25.50
10	12	30.00	35.00	37.50
12	15¼	38.00	43.00	45.50
Buzzer	1½	10.00	13.00	15.50

No. 552 Double Gong Type

Size In.	Approx. Wt. Lbs.	Price Each †8 to 30 Volts, A.C.	110 to 130 Volts, A.C.	220 to 240 Volts, A.C.
4	4½	$14.00	$17.00	$19.50
6	6¼	23.00	27.00	29.50
8	15¼	27.50	31.50	34.00
10	22¾	35.00	40.00	42.50

†Standard bells unless otherwise specified are for 12-18-volt operation. No extra charge for 8 volts or up to 30 volts, but the exact operating voltage and cycles must be specified.

Weatherproof Type: when specified, furnished without extra charge.

Conduit Type: Add **$1.25** list for separable conduit fitting for flush or surface conduit.

Part and Full Grid Types

Add to standard bell as follows: (Double for No. 552 Double Gong Type).

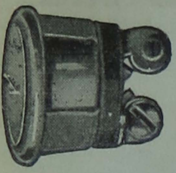
Part Grid Type No. 551PG Sizes Inches	Wt. Lbs. Each	Price Each	Full Grid Type No. 551FG Sizes Inches	Wt. Lbs. Each	Price Each
6	¾	$8.00	6	2¼	$8.00
8	1	9.00	8	3¼	9.00
10	1⅞	10.00	10	5½	10.00
12	2½	12.00	12	7	12.00

No. 551Y, with protective hood: Add to standard bell **$25.00** list.

EDWARDS PUSH BUTTONS

Schedule E

LOW-VOLTAGE PUSH BUTTONS



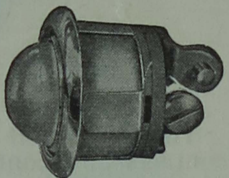
Flat Pearl Centers

Phosphor-Bronze springs, self-cleaning contacts. Spring clips hold push in hole. Standard finish, nickel. Brushed brass, no extra charge.

Cat. No.	Description	Std. Pkg.	Wt. Oz. Std. Pkg.	Price Each
620	Insulated—fits ⅝-in. hole	50	14	**$0.30**
59	Insulated—fits ¾-in. hole	20	9	**.60**
63	Grounded—fits ½-in. hole	20	9	**.67**

LOW-VOLTAGE PUSH BUTTONS

Rounded Raised Centers



No. 625

Same mechanism as No. 620. No. 625 available in opaque Lucite of white, black, red, blue and yellow. White furnished unless otherwise specified. No. 626 has transparent center which magnifies the letter or number beneath it. Only two numerals or letters. Standard finish of rims, nickel. Brushed brass if specified, no extra charge.

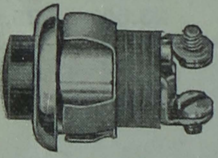
No. 626

Cat. No.	Centers	Std. Pkg.	Price Each
625	Colored	20	**$0.44**
626	Indicator	1	**.60**

Luminous Center for No. 625, add to list **$0.50;** Schedule T.

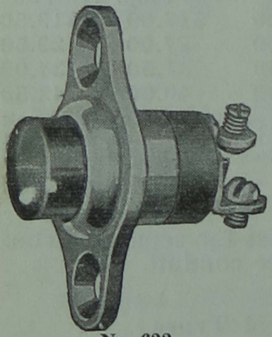
LOW-VOLTAGE PUSH BUTTONS

Protruding Centers



No. 621

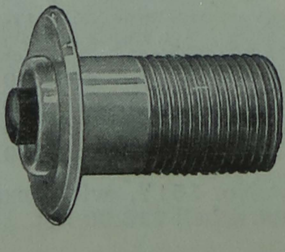
Insulated type. Same fine mechanism as No. 620. No. 623 has locknut to hold push firmly on panels and places where there is heavy vibration such as planes, boats, trains, etc. No. 623 is usable only where access to back is possible to set up locknut. Standard finish of rims, nickel. Brushed brass if specified, no extra charge.



No. 622

Cat. No.	Fits Hole	Std. Pkg.	Wt. Oz.	Price Each
	With Spring Clips			
621	⅝	10	7	**$0.65**
	Forced Fit			
116	½	1	1	**1.30**
	With Escutcheon			
622	½	10	7	**.90**
	With Locknut			
623	⅝	10	7	**.80**

NO. 262 CONDUIT PUSH



Made to fit ½-inch conduit. Will allow installation to be vaporproof; especially adapted for bathrooms, etc.

Schedule T

Cat. No.	For Conduit	Std. Pkg.	Price Each
262	½	1	**$4.00**

EDWARDS PUSH BUTTONS

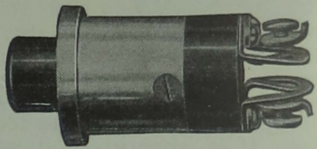
HIGH-VOLTAGE PUSH BUTTONS

Schedule T

Underwriters' Approved, 125-250 volts, 1 amp. Strong, sturdy, quick make and break. Fits ¾-inch hole. Has locknut for fastening to plate or panel.

Cat. No.	Description	Price Each
84	As described	**$2.65**
841	Weatherproof on Switch Plate	**5.60**
840	Pendant Push, Bakelite Case	**4.50**

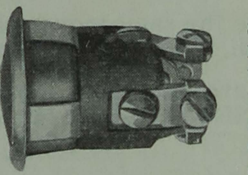
A quick break push with heavy contacts. Standard finish, nickel. Brush brass at no extra charge.



Cat. No.	Voltage	Type	Fits Hole	Std. Pkg.	Wt. Oz.	Price Each
85	110	Standard	¾	1	2	**$2.40**
85A	220	Standard	1⅛	1	4	**6.20**
85P	110	Escutcheon	¾	1	4	**3.15**
85AP	220	Escutcheon	1⅛	1	6	**6.95**
85L	110	Locknut	⅞	1	3	**2.65**
85C	110	Closed Cir.	1⅛	1	4	**7.85**

Can be furnished with red and white centers, add to list **$0.70.**

LOW-VOLTAGE MULTIPLE-CONTACT PUSH

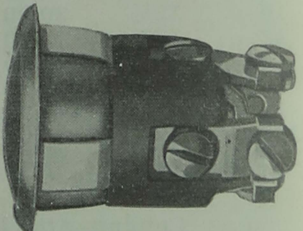


Insulated. Four contact springs on which plunger makes contact. May be wired to operate 3 separate circuits with one common wire or strapped together to close 2 circuits with double contact capacity.

Standard finish—nickel plate or brush brass.

Open Circuit				Closed Circuit			
Cat. No.	For Hole	Std. Pkg.	Price Each	Cat. No.	For Hole	Std. Pkg.	Price Each
260	¾	1	**$1.40**	**260-C**	¾	1	**$2.05**

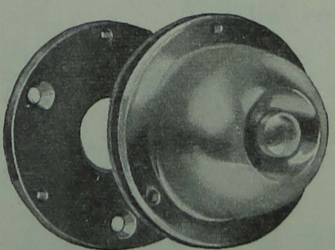
NO. 265 RETURN CALL PUSH



So constructed that it breaks one circuit and makes another circuit. Used in return call and other systems to save additional wiring. Standard finish, nickel. Brush brass, no extra charge. Black center.

Cat. No.	For Hole In.	Std. Pkg.	Price Each
265	¾	1	**$1.90**

WATERTIGHT PUSH

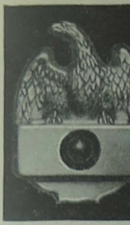


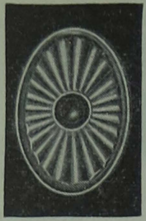
Solid brass push button for use outside of buildings, industrials, for marine work, ice plants, chemical plants, etc. No. 1786-C has a solid brass conduit plate threaded to fit ½ inch conduit. Standard package, 1.

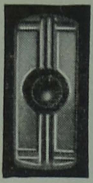
Cat. No.	Diam. of Base, In.	Diam. of Body, In.	Dpth. In.	Price Each
1786	2⅜	1⅝	1 3/16	**$3.50**
1786-C	2⅜	1⅝	1 5/16	**5.50**

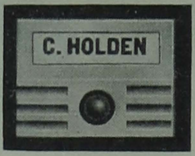
EDWARDS SCREWLESS PUSHES

Schedule Q


No. 630


No. 631


No. 632



No. 633

With these smart and distinctively styled, yet low cost pushes, it is no longer necessary to mar the appearance of an otherwise craftsmanlike job with cheap appearing pushes.

Hole can be drilled, wires connected and the flat sub-plate can be fastened to the surface with screws. Finished plate snaps firmly to sub-plate. Pushes are fully insulated; the contacts are pure phosphor bronze, self cleaning in operation. The finished plates are heavy brass, not sprayed, beautifully finished.

No. 630 makes an attractive feature for all colonial type doorways. No. 631 is decorative but conservative. It is ideal for plaster walls as well as front entrances. No. 632 is smart and conservative and particularly adapted to narrow spaces.

No. 633 is the latest word in cardholder type pushes. Conservative, yet smart enough for the door way of any home, apartment or office. Packed in each box is a card including printed names, numbers and letters such as — Doctor, Dentist, Night Bell, Ring-Then-Enter, etc., for the most common uses. Perforations permit labels selected to be removed from card and inserted in push with ease.

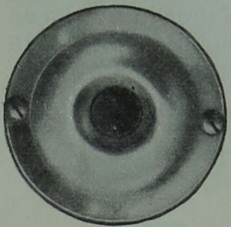
Cat. No.	Description	Std. Pkg.	Wt. Oz., Std. Pkg.	Price Each
	Eagle—Colonial Type			
630	Antique Brass	10	10	**$0.30**
630A	Polished Brass	10	10	**.36**
630D	Swedish Iron	10	10	**.36**
630G	Chrome	10	10	**.45**
630H	Brushed Br. and Lacquered	10	10	**.30**
	Oval—Decorated Type			
631	Antique Brass	10	10	**.30**
631A	Polished Brass	10	10	**.36**
631D	Swedish Iron	10	10	**.36**
631G	Chrome	10	10	**.45**
631H	Brushed Br. and Lacquered	10	10	**.30**
	Slim Type			
632	Antique Brass	20	14	**.22**
632A	Polished Brass	20	14	**.26**
632D	Swedish Iron	20	14	**.26**
632G	Chrome	20	14	**.33**
632H	Brushed Br. and Lacquered	20	14	**.22**
	Cardholder Type			
633	Antique Brass	10	10	**.38**
633A	Polished Brass	10	10	**.46**
633D	Swedish Iron	10	10	**.46**
633G	Chrome	10	10	**.54**
633H	Brushed Br. and Lacquered	10	10	**.38**

BRONX PUSHES

Schedule E

Standard finish satin brass, other finishes special. Black composition centers. Mechanism is entirely insulated and is sufficiently recessed to allow use of No. 14 wire and still leave ample room between the screws and wall, there being no chance of grounding. Wire is fastened directly to the same screw that holds one side of contact spring. The fibre is recessed so wire cannot slip out of place. Packed in individual box.

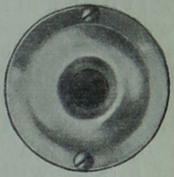
NO. 600 BRONX PUSH



Is 2 5/16 inches in diameter with black composition center. Construction of this push is entirely the same as described above.

Cat. No.	Diameter In.	Standard Package	Price Each
600	2 5/16	100	**$0.12**

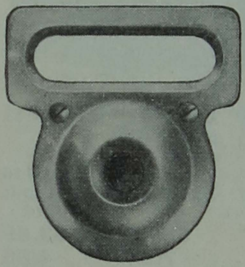
NO. 603 BRONX PUSH



Is entirely the same construction as Bronx pushes described above, except that it is a miniature size push, only 1¾ in. in diameter.

Cat. No.	Diam. In.	Std. Pkg.	Price Each
603	1¾	100	**$0.12**

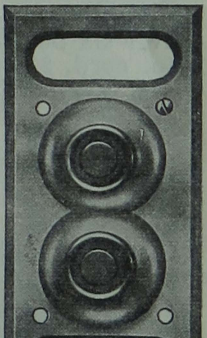
NO. 601 SINGLE CARD HOLDER TYPE



Practically the same as described above. Card rack is so arranged that a slot for inserting the card is at each end of the rack, and in this way there is no ugly slot visible when card is in place. It permits push to be mounted any way desired without the card falling out.

Cat. No.	Length In.	Width In.	Std. Pkg.	Price Each
601	2½	2¼	50	**$0.20**

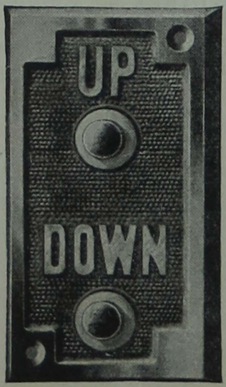
NO. 602 DOUBLE CARD HOLDER TYPE



The card holder push is practically the same as the Bronx described above. Card racks are arranged so that a slot for inserting the card is at each end of the rack, and in this way there is no ugly slot visible when card is in place. It also allows the push to be mounted any way desired without card falling out.

Cat. No.	Length In.	Width Overall	Std. Pkg.	Price Each
602	4 9/16	2	20	**$0.36**

EDWARDS ELEVATOR CALL BUTTONS



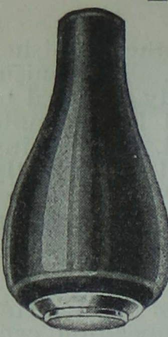
Schedule T

Designed for use with Edwards annunciators or any standard make annunciator.

Case is iron, finished in black, for surface mounting. Other commercial finishes, add 50 per cent.

Cat. No.	Description	Wt. Lbs.	Price Each
159	Up and Down	1⅝	**$6.00**
159U	Up Only	1⅝	**5.00**
159D	Down Only	1⅝	**5.00**
159X	Plain	1⅝	**5.00**

EDWARDS PUSHES



BAKELITE PEAR PUSH

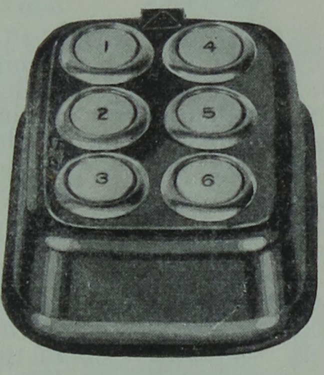
Keeps its fine finish indefinitely, will not warp, check or crack. Equipped with No. 620 push. For protruding center push add **$0.30** to list.

Cat. No.	Description	Price Each
67	Black or Mahogany	**$0.60**
67W	White Enamel	**.75**

NO. 146 PUSH BUTTON BLOCK

With Numbered Pushes

Schedule E



Of molded bakelite with removable weighted base and a sponge rubber pad. Flush numbered midget pushes supplied with the block. Can be mounted on the side of a desk with the use of concealed mounting hole provided for that purpose.

Standard finish: Black, walnut, or mahogany. Finish must be specified.

Special engravings, initials or names, **$0.25** list per letter. Standard package, 5 assorted.

No. of Buttons	No. 146S With 6-ft. Cord	No. 146 Without Cord	No. of Buttons	No. 146S With 6-ft. Cord	No. 146 Without Cord
1	**$2.69**	**$2.15**	4	**$5.85**	**$3.65**
2	**3.82**	**2.50**	5	**7.14**	**4.50**
3	**4.93**	**3.20**	6	**8.33**	**5.25**

Over six buttons, add per button for block with 6-foot cord, **$1.38**; for block without cord, **$0.90.**

Over six buttons, wood construction.

NO. 197 BAKELITE DESK PUSH

Schedule E

3-5
1-4
1-3
1-1
1-

Has phosphor-bronze scraping contacts and is fully insulated. Base is covered with soft sponge rubber.

Has changeable name cards. Standard color, black. Mahogany, oak or walnut, no extra charge, but must be specified.

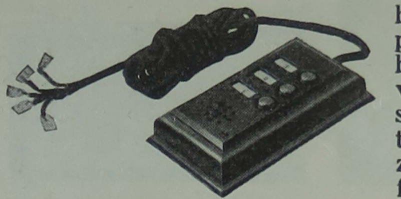
Standard package, 5 assorted.

No. of Buttons	No. 197 Without Cord	No. 197S With 6-ft. Cord Only	No. 197T 6-foot Cord and Connector	Wt. Oz. Push Only
1	**$2.50**	**$3.30**	**$4.40**	4
2	**3.00**	**4.10**	**5.26**	4
3	**3.50**	**5.20**	**6.44**	5
4	**4.30**	**6.10**	**7.44**	6
5	**5.80**	**8.50**	**10.00**	7
6	**7.30**	**10.30**	**12.06**	8

EDWARDS DESK PUSHES

NO. 195 DESK PUSH WITH BUZZER

Schedule T



A combination buzzer and desk push in which the buzzer is included within the push itself. Eliminates extra wiring for buzzer. Plate is perforated to allow free emission of sound. Standard finish black. Mahogany or oak, no extra charge.

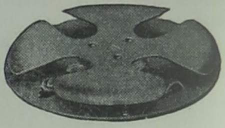
No. of Buttons	No. 195S Cord Attached	No. 195 Without Cord	No. of Buttons	No. 195S Cord Attached	No. 195 Without Cord
1	**$10.44**	**$9.90**	6	**$25.58**	**$22.50**
2	**12.32**	**11.00**	8	**33.96**	**30.00**
3	**14.76**	**13.00**	10	**42.34**	**37.50**
4	**18.00**	**15.80**	12	**50.70**	**45.00**
5	**21.64**	**19.00**	....	....	....

For larger sizes add, per button, **$2.50.** For flexible cord only, per foot per conductor, **$0.08.**

EDWARDS FLOOR PUSHES

Schedule E

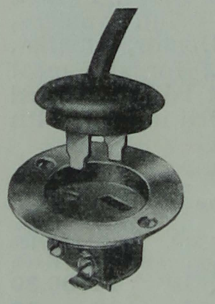
DIXIE FLOOR TREAD



Standard finish is satin brass. Contact is made by pressure at any point.

Cat. No.	Std. Pkg.	Wt. Ozs.	Price Each
290	10	5	**$1.20**

NO. 235 RECEPTAPLUG

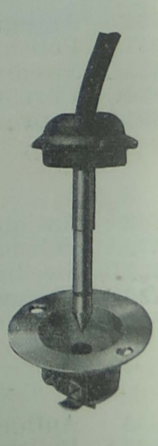


For non-carpeted floors or rugs. Receptacle mortises into floor. Rubber-capped plug is inserted flush into receptacle leaving no "bulge." Recommended installation is combination of No. 235–290. Plug will not fit standard lighting receptacles.

Standard finish, Satin brass with brown rubber cap. Receptaplug furnished without cord and floor push. Standard package, 10.

Cat. No.	Description	Price Each
235	Receptaplug for Non-Carpeted Floors	**$0.95**
235F	Same as above. To fit floor box	**10.00**
	Plug only for No. 235 Receptaplug	**.35**

NO. 234 RECEPTAPLUG



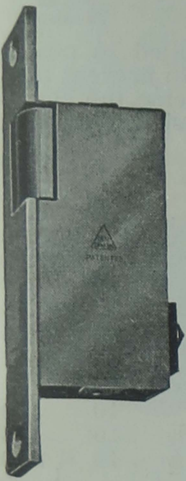
Designed for use where dining-room floor is completely carpeted. Receptacle mortises into floor so that no part extends above floor line. Receptacle should be installed at central point under table to eliminate unnecessary wire lengths to table push. Sharp-pointed spike inserts easily through carpet without harm and into hole in receptacle. The depression of receptacle is easily found with finger pressure after carpet has been set. Receptacle and spike are of rugged construction, heavy brass with soft-rubber cap. Spike, 2 inches long, 1¼ inches diameter. Without cord. Satin brass.

Cat. No.	Description	Std. Pkg.	Price Each
234	Receptaplug including spike	5	**$2.50**
......	Spike only for No. 234	..	**1.50**

EDWARDS DOOR OPENERS

Schedule E

All door openers except Nos. 9 and 52 can be supplied with release check so they may be used where air checks are employed, for which add to list **$8.00.** All door openers except No. 1541 may be used on either right or left hand doors. Regular voltages 4½ to 6 volts D.C., or 12-16 volts A.C. All door openers except No. 9 can be furnished for special voltages up to 48 volts. Prices on application.



NO. 9 ECONOMY—MORTISE TYPE

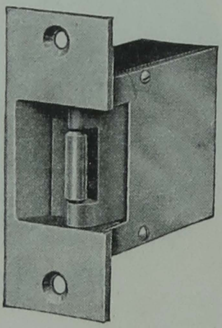
Schedule E

Economy mortise type; solid nose. Made of heavy pressed steel, heavily brass plated. Used extensively for apartments. Fits the same size mortise as same shape openers of other manufacturers. Height, 3⅝ inches; depth, 2⅛ inches; thickness, 1 inch; nosing opening, 1$\frac{3}{16}$ inches; face plate, 5⅞x1¼ inches.

Cat. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
9	24	24	$2.00

NO. 154 MORTISE TYPE

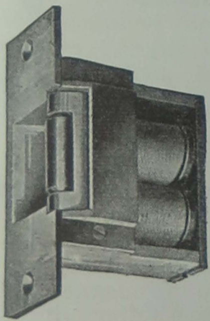
Schedule T



Roller nose; for heavy doors; requires smaller mortise than Economy. Body height, 2⅛ inches; depth, 2⅞ inches; width, 1¼ inches; nosing opening, 1¼ inches; face plate, 1¼x 3⅜ inches.

Cat. No.	Std. Pkg.	Wt. Oz. Std. Pkg.	Price Each
154	1	14	$5.65

NO. 48 MORTISE TYPE

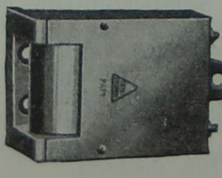


Roller nose; extra heavy, of solid bronze. Nosing opening, 1⅛ inches; face plate, 1½x3⅞ inches.

No. 48A, same as above, except size. Nosing opening, 1½ inches; face plate, 1½x4 inches.

Cat. No.	Dimensions, Inches			Price Each
	Height	Depth	Th'kn'ss	
48	2¼	2⅞	1⅝	$35.00
48A	2⅝	2⅞	1⅝	38.00

NO. 152 RIM TYPE



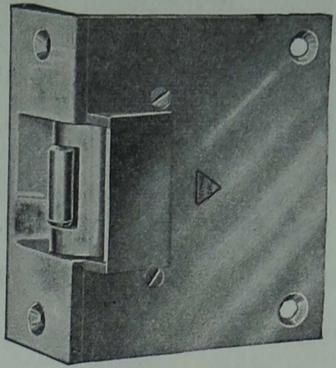
Solid nose; for surface locks, thin doors, etc. Made of cast iron. Nose opening, 1¼ inches. Brass front.

Cat. No.	Dimens., In.			Std. Pkg.	Price Each
	Hght.	Dpth.	Thck.		
152	2	3	1⅛	1	$5.00

EDWARDS DOOR OPENERS

Schedule T

NO. 51 AND NO. 153 PLATE TYPES



No. 51. Roller nose. For frames too thin to take a mortise. Bronze finish.

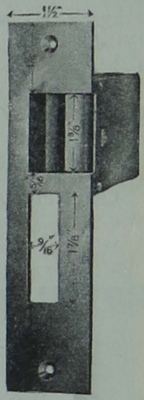
No. 51A. Same as above, except dimensions. Plate same as No. 51.

No. 153. Roller nose. For doors too thin to take a mortise. Brass finish.

Standard package, 1.

Cat. No.	Dimens., In.			Nosng. Opng.	Plate		Price Each
	Hght.	Dpth.	Wdth		Face	Side	
51	2⅝	2⅞	1⅝	1⅛	3¾x1½	3¾x2⅞	$38.00
51A	2⅝	2⅞	1⅝	1½	3¾x1½	3¾x2⅞	40.00
153	2⅛	3	1¼	1¼	3⅜x1¼	3⅜x2¾	7.00

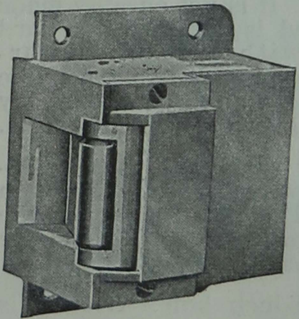
NO. 1541 MORTISE TYPE



Roller nose. Face plate is extended to provide space for mortise for dead bolt. A sketch of striking plate is required with order, otherwise no screw or bolt openings will be provided. Height, 2 inches; depth, 2⅞ inches; thickness, 1⅛ inches; nosing opening, 1¼ inches; brass face plate, 1½x6¼ inches. There cannot be less than $\frac{5}{16}$ inch between nosing and dead bolt opening.

Cat. No.	Std. Pkg.	Wt. Oz. Std. Pkg.	Price Each
1541	1	18	$13.00

NO. 50 RIM TYPE

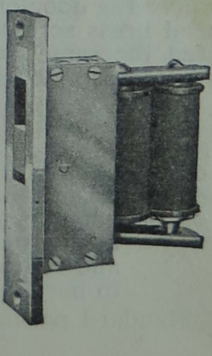


Rim type, for surface or rim locks, thin door, etc. Height, 2¼ in.; depth, 2⅞ in.; thickness, 1⅝ in.; nosing opening, 1⅛ in. No. 50A is the same, except nosing opening is 1½ inches.

Cat. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
50	1	1½	$35.00
50A	1	1¾	38.00

NO. 52 MORTISE TYPE

For Sliding Door

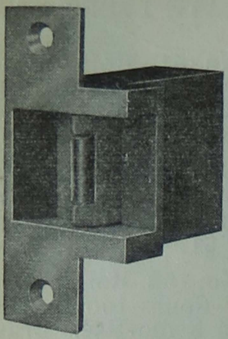


Solid nose. Height, 3½ inches; depth, 3¼ inches; thickness, $\frac{15}{16}$ inch. Nosing opening, ½x¾ inches. Face plate, 1⅛x 4⅞ inches. Finish, bronze.

Cat. No.	Std. Pkg.	Wt.Lbs. Std.Pkg.	Price Each
52	1	1¾	$38.00
239	Latch for Above....		3.50

EDWARDS DOOR OPENERS

Schedule T



NO. 1540 DOOR OPENER

Mortise. Roller nose. Same mechanism as No. 154 plus extended lip to cover ragged edges where wood is mortised for opener. Height, 2 inches; depth, 2⅞ inches; thickness, 1⅛ inches. Face plate, 1⅛x3¾ inches. Voltage, 4½—6 volts D.C. or 12—16 volts, 60 cycles A.C. Special voltages available.

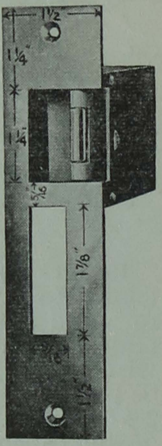
Price, No. **1540** Door Opener ....each **$17.00**

NO. 1542 ROLLER NOSE TYPE

Extended face plate provides space for mortise for dead bolt. Right-hand or left-hand door openers available. Specify exactly when ordering. Body size: Height, 2 inches; depth, 2⅞ inches; thickness, 1⅛ inches. Nose opening, 1¼ inches. Face plate, 1⅛x6¼ inches. Voltage, 4½—6 D.C. or 12—16 volts, 60 cycles A.C. Special voltages available.

Provides same protection to woodwork as the protected box type strike which it replaces.

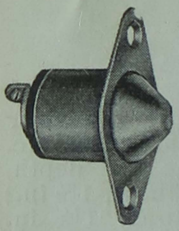
Price, No. **1542** Door Opener ....each **$18.00**



EDWARDS BURGLAR ALARM DEVICES

ALL-PURPOSE CONTACTOR

Schedule E



This ingenious device has long been needed to replace the confusing collection of old-fashioned "springs." It is not cheaply made but instead is designed for hard service with pure phosphor-bronze scraping contacts, genuine Vulcoid insulation and heavy brass casing and moving parts.

Unlike all old-fashioned springs, it is scientifically designed so that pressure from any direction will depress the nosing. The radial action of the nosing requires but easy pressure. The contactor may be installed in any position.

The contactor fits a ¾-inch hole. Overall is 1⅝ inches high, 1⅝ inches deep, including flanges. It need not be mortised except in remote instances where the door or window is a very tight fit. Flat head brass screws are supplied. While it may be used the same as old window and door springs, its universal action makes it more flexible.

Cat. No.	Description	Price Each
44	Pressure on nosing opens circuit........	**$0.40**
45	Pressure on nosing closes circuit........	**.40**
46	Momentary Contact. Pressure on nosing makes—then breaks circuit and repeats operation in returning to normal	**.40**

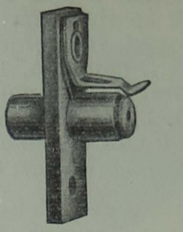
Standard package, 20.

EDWARDS BURGLAR ALARM DEVICES

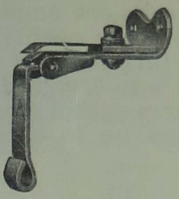
BURGLAR ALARM SPRINGS

Schedule E

No. 28 Window



No. 34 Door



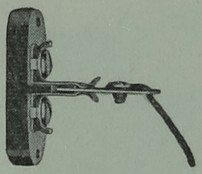
No. 236 Trip

No. 32 Transom

Window springs should be installed so nosing rides in a mortise in window sash to prevent tampering. If there is no mortise, reverse the classification of open and closed circuit window springs as listed below.

Cat. No.	Description	Size Plate	Std. Pkg.	Price Each
	Open Circuit Springs			
28	Window	2½x ½	10	**$0.58**
30	Window	3⅜x ⅝	10	**.80**
32	Transom	2½x1 1/16	10	**1.10**
34	Door	2 x ⅝	50	**.34**
38	Make and Break......	2 x ⅝	10	**.34**
236	Door Trip	2¼x1¼	10	**1.05**
	Closed Circuit Springs			
30-C	Window	3⅜x ⅝	10	**.80**
39	Door	2 x ⅝	10	**.34**
32-C	Transom	2½x1 1/16	10	**1.10**

BURGLAR ALARM TRAPS

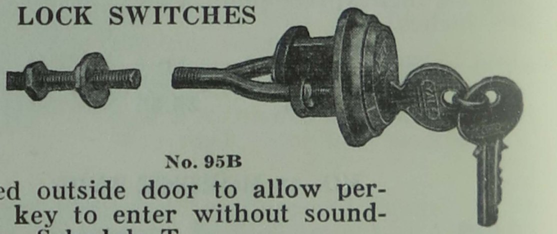


Burglar alarm traps used with cord or wire stretched across open spaces. Slightest movement operates trip and sounds alarm.

Schedule E

Cat. No.	Description	Price Each
29	Open Circuit	**$0.36**
29-C	Closed Circuit	**.36**

LOCK SWITCHES

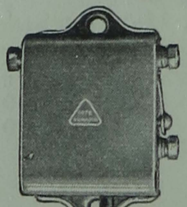


No. 95B

Mounted outside door to allow person with key to enter without sounding alarm. Schedule T.

Cat. No.	Description	Price Each
95B	Complete with Rod...	**$7.95**
95	With Screw Mounting Plate, no Rod....	**6.50**

CONSTANT RINGING DROP



To cause any alarm to ring continuously until drop is reset, 6-8 volts D.C., 8-12 volts A.C. Schedule T.

No. 26 cuts own magnet out of circuit, reducing battery drain.

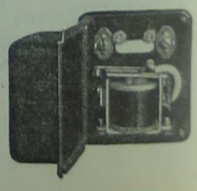
Price, No. **26** ....each **$2.70**

NO. 1239 BURGLAR ALARM RELAYS

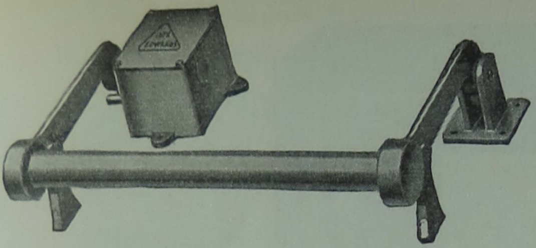
Small compact, reliable. Contact capacity up to 6 amperes according to voltage.

Coil windings as specified up to 24 volts, **$6.00**; up to 48 volts, **$6.75**; 110 volts. **$8.00**.

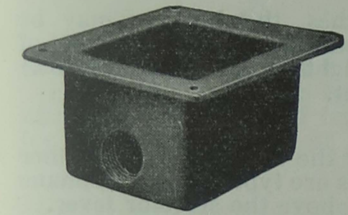
Specify definite contact operation desired.



EDWARDS HOLD-UP ALARM SYSTEMS

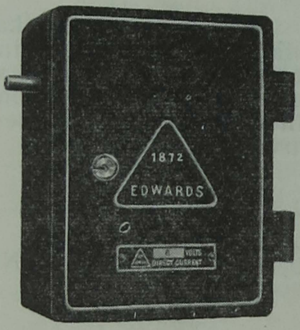


No. 119 foot switch is made of cast bronze and sturdily designed so that it can be used as a foot rest at all times, making its location a matter of habit. To sound the alarm, the foot is slid forward 1 inch, the rail riding up the instep. These are superior to switches designed so the rail must be depressed. No springs are necessary to hold the rail up. False alarms are less possible. For surface conduit. 12-inch rail standard.



No. 119C foot switch is same as above but for concealed conduit with separate floor box as illustrated, which can be drilled on any four sides as specified.

Switches with rail longer than 12 inches can be furnished.



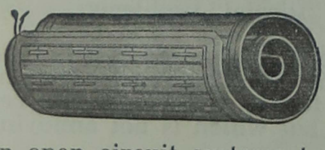
No. 1190 control station is so arranged that anyone can turn system on in the morning by pushing plunger at side of box. Only authorized persons with key can turn system off. This station also contains the constant ringing attachment, so that when a foot switch is raised, the alarm will continue to sound until system is turned off. For open circuit only.

Cat. No.	Description	Price Each
119	Foot Switch with 12-inch Rail for Surface Conduit	$34.00
119C	Foot Switch with 12-inch Rail for Concealed Conduit	40.90
1190	Control Station	40.00

Extra Length Rail, per foot or fraction of a foot, list **$0.70.** Extra Support, for Rails over 24 inches, list **$4.80.**

ELECTRIC MATTING

Schedule E



For use in open circuit systems to protect entrances, stairways, etc., that are otherwise difficult to protect. Can be placed under carpets or other places where foot pressure will close contact. Full length roll can easily be cut into any lengths desired on the job, but the width cannot be changed.

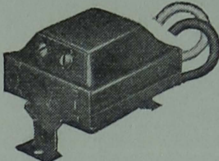
Standard package, 1 full roll, 10 feet long, 2 feet wide.

Price, No. **36** Electric Matting, per sq. ft. **$3.00**

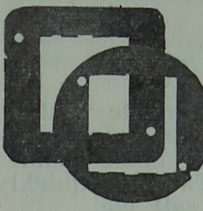
EDWARDS CHIME, DOORBELL AND SIGNALING TRANSFORMERS

Schedule E

The new Edwards Chime and Doorbell Transformers are designed for a special purpose. They may be used in either round or square outlet boxes.



Cat. No.	Watts	Volts	Cycles	Std. Pkg.	Price Each
86†	5	115	60-140	50	**$0.72**
86X†	5	115	25-50	50	**1.44**
86Y†	5	230	60-140	50	**.84**
86ER*	5	115	60-140	20	**.88**
86ES*	5	115	60-140	20	**.88**
878†	10	115	60-140	20	**1.54**
879	10	115	60-140	20	**1.02**
879Y	10	230	60-140	20	**1.18**
875	15	115	60-140	10	**1.40**
884	24	115	60-140	5	**3.00**



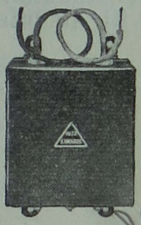
PLATES

Cat. No.	Style	Std. Pkg.	Wt. Lbs.	Price Each
862†	Round	20	3½	**$0.16**
863†	Square	20	5	**.16**

*No. 86ER includes No. 86 transformer and No. 862 round plate. No. 86ES includes No. 86 transformer and No. 863 square plate.

†Underwriters' Listed.

TRI-VOLT TRANSFORMERS



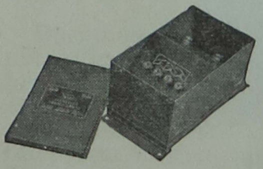
Tri-volt transformers allow a more selective secondary voltage. Particularly adapted for unusually long lines.

Cat. No.	Primary Volts	Primary Cycles	Std. Pkg.	Pkg. Wt.	Price Each
874	115	60-140	20	26	**$1.04**
874Y	230	60-140	20	26	**1.30**
872	115	60-140	10	27	**2.20**

SIGNALING TRANSFORMERS

Enclosed Standard—Schedule T

Edwards
88-100
Bell Syste
in [illegible]



Designed to have more wattage capacity, and supplied with a greater number of low voltage taps than the bell type.

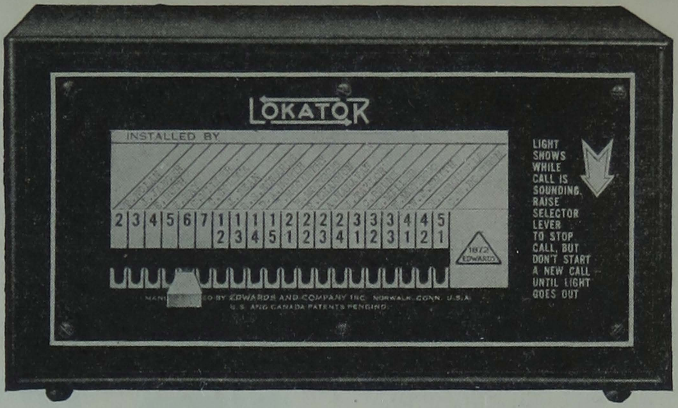
These transformers have a wide secondary range of 4-8-12-16-20-24 volts.

115 Volts—60 Cycles

Cat. No.	Watts	Overall Dimens. Hght.	Overall Dimens. Wdth.	Overall Dimens. Lgth.	Approx. Wt. Lbs.	Price Each
88	50	4¼	3⅝	7⅞	6	**$5.00**
90	100	4$\frac{7}{16}$	4⅝	8⅝	9½	**8.00**
94	250	6	5⅛	9½	17	**18.00**
99	500	6½	6½	12⅛	38	**29.00**
7194	750	6½	7½	14½	42	**38.50**
7195	1000	6½	9¾	14½	58¼	**48.00**

Ratings apply to 24-volt tap. Proportionately less watts are delivered on lower voltage taps: example, No. 88, 50 watts at 24 volt, and only 25 watts at 12 volt.

EDWARDS LOKATOR SYSTEM


LOKATOR
INSTALLED BY
LIGHT SHOWS WHILE CALL IS SOUNDING. RAISE SELECTOR LEVER TO STOP CALL, BUT DON'T START A NEW CALL UNTIL LIGHT GOES OUT

Standard Twenty Call Lokator

An efficient, inexpensive, dependable system, which through the medium of various signals located throughout a plant, store, or office enables the telephone operator in one operation to quickly locate any person for a telephone call, etc.

The Lokator is operated entirely by low voltage irrespective of the voltage used to operate the signals. Its mechanism is driven by a small but sturdy, noiseless, synchronous motor. There are no intricate springs, cams, gears, etc.

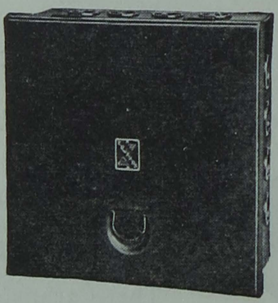
Plainly designed the Lokator presents a neat, dignified, efficient appearance. Its baked black finish relieved in dull chromium is practical and ornamental. It is neutral and harmonizes smartly with all interiors and furniture.

Only 10x5¾x5½ inches, the Lokator may be placed conveniently on the key shelf or on top of any switchboard. It is light and portable (8½ lbs.) and may be shifted about.

It is not necessary for the operator to remember code numbers. All names are typed on a cellophane protected strip directly above the selector lever.

Every unit of the Lokator system is scientifically standardized. Special installations, which require costly items have been avoided. The easiest, least expensive, and most convenient method of wiring the devices may be used. Conduit, molding, etc., are not necessary.

POWER UNIT



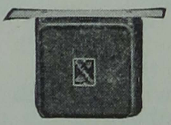
The Power Unit

The power units are standardized to provide the most desirable voltage operation of the system from either A.C. or D.C. lighting circuit.

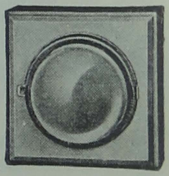
A simple chart shows the quantity of signals one power unit will operate over a given distance and wire size. The system is unlimited as additional power units may be inserted into the line where needed.

SOUNDING DEVICES

No. 5023
Bell



No. 5001
Chime



No. 5031
Light Signal

A wide variety of sounding devices is offered to cover all conditions; a soft musical note, a louder note, a sharp toned bell, a silent light flash, a blasting horn. Each one, however, is designed, rated and standardized for operation together. Again there are no "special" problems.

The most commonly used of the sounding devices for all systems are the chimes. They have a pleasant musical tone to which the ear responds subconsciously, but which is not annoying.

The light signal is ideal for locations where no noise whatsoever is required and then the call is shown by the flashing light.

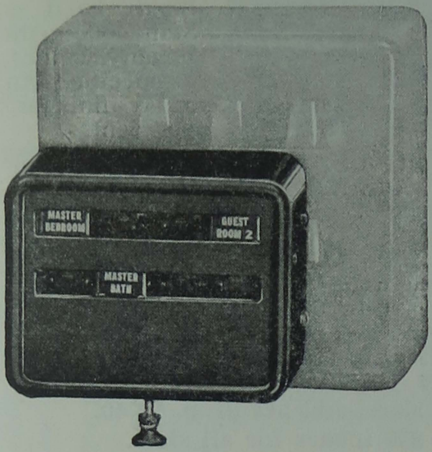
The specially designed bells give a clear crisp tone and will stand many years of hard service.

Complete information, prices and wiring details will be furnished upon request.

EDWARDS ANNUNCIATORS

Schedule T

SURFACE TYPE ANNUNCIETTE

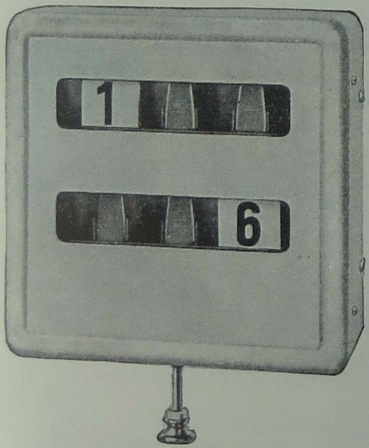


New Surface Annunciators that are much smaller and neater than old fashioned types.

Electro-manual types have magnet reset mechanism. May be actuated from remote places. Ideal for multiple operation or remote control.

No. of Drops	Dimensions, Inches Height	Width	Depth	No. 82 Manual Reset	No. 482 Electro-Manual Reset
2	4⅜	5¼	2½	$11.50	$19.50
3	4⅜	5¼	2½	12.50	20.50
4	4⅜	5¼	2½	13.50	21.50
6	4⅜	5¼	2½	17.00	25.00
8	4⅜	5¼	2½	20.50	30.50
10	5	7 3/16	2½	25.50	35.50
12	5	7 3/16	2½	30.50	40.50
14	7 3/16	7 3/16	2½	36.80	46.80
16	7 3/16	7 3/16	2½	40.50	52.50
18	7 3/16	7 3/16	2½	45.50	57.50
20	7 3/16	7⅞	2½	45.50	57.50
24	7 3/16	8⅜	2½	60.50	72.50
Larger Sizes, Add per Drop..........				4.00	5.00

SURFACE TYPES—HAND RESET



No. 91 San-Fer-Ann

Hand reset, surface type. All metal case, finely finished. No. 80 Drop used in this annunciator is locked in place and cannot be released by shaking or jarring.

Standard finishes: No. 81—black only. No. 91—white enamel. Walnut and mahogany, no extra charge.

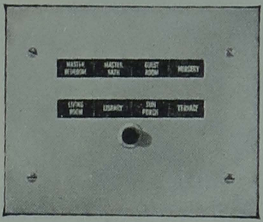
No. of Drops	Arrangement Across	Down	Dimensions, In. High	Wide	Deep	Price Each No. 81 Dixie	No. 91 San-Fer-Ann
2	2	1	5	7 3/16	3⅜	$11.50	$12.08
3	3	1	5	7 3/16	3⅜	12.50	13.13
4	4	1	5	7 3/16	3⅜	13.50	14.18
6	3	2	7 3/16	7 3/16	3⅜	17.00	17.85
8	4	2	7 3/16	7 3/16	3⅜	20.50	21.53
10	5	2	7 3/16	8½	3⅜	25.50	26.78
12	6	2	7 3/16	9⅞	3⅜	30.50	32.03

Larger sizes, prices on application.

EDWARDS ANNUNCIATORS

Schedule T

FLUSH TYPE ANNUNCIETTES



All metal case. Flush types can be completely wired before face plate is installed. Standard finish, white. Any other spray finishes, add 5 per cent.

8-12 volt A.C. operation with buzzer signal standard. Any A.C. or D.C. voltage up to 24, no extra charge.

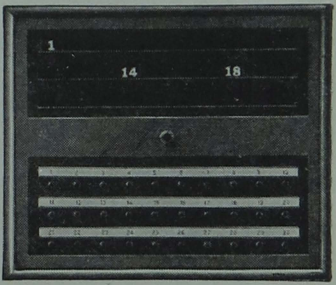
No. of Drops	Wall Cut, Inches Height	Width	No. 672 Manual Reset	No. 682 Electro-Manual Reset
2	4⅝	5⅞	$14.50	$22.50
3	4⅝	5⅞	15.50	23.50
4	4⅝	5⅞	16.50	24.50
6	4⅝	5⅞	20.50	28.50
8	4⅝	5⅞	23.50	33.50
10	4⅝	7⅞	28.50	38.50
12	4⅝	7⅞	33.50	43.50
14	6¼	7⅞	39.50	49.88
16	6¼	7⅞	43.50	55.50
18	6¼	7⅞	48.50	60.50
20	7⅞	7⅞	53.50	65.50
24	7⅞	7⅞	63.50	75.50
Larger Sizes, per Drop			4.00	5.00

Depth 3 inches for all sizes.

RETURN CALL ANNUNCIETTES

NO. 410 SURFACE TYPE—HAND RESET

Standard Voltage, 8-12 Volts A.C.



Used in hotels, institutions, etc., for the purpose of calling the room and receiving acknowledgment from the room that the call has been heard, or vice versa.

Designed to eliminate the large number of wires necessary if the standard annunciator, bells and pushes are used. Presents reduction in size without affecting clearness of indication.

All metal case, surface type, in black, mahogany or oak.

No. of Drops	Arrangement Across	Down	Dimensions, Inches High	Wide	Deep	*Price Each
25	9	3	11	12	3½	$211.00
30	8	4	13⅜	11	3½	237.00
36	9	4	13⅜	12	3½	273.00
42	11	4	13⅜	14	3½	321.00
49	10	5	15¾	13	3½	366.00
56	12	5	15¾	15	3½	406.00

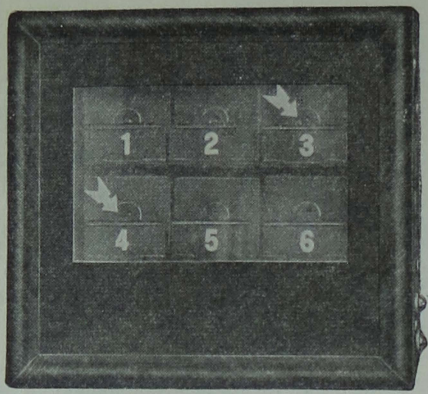
For flush type, add **$13.00** to list of above.

For larger sizes see No. 415 Electric Reset Type.

EDWARDS ANNUNCIATORS

Schedule T

NO. 403 SURFACE TYPE — ELECTRIC RESET

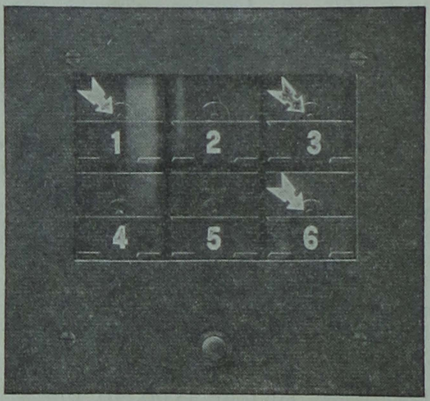


An all metal case of pleasing symmetrical design with the best quality of grained wood finish. The new No. 4 Drop used in these annunciators uses less current and gives a far better indication than any drop heretofore manufactured. The current consumption of the drop both for indicating and resetting is far below the average. The audible signal is a new type double adjustment buzzer. Reset buttons are regularly furnished on case. Connectors only can be furnished without extra charge.

Standard finish black; mahogany or oak no extra charge. Requires 8 volts D.C. or 16 volts A.C. at the annunciator.

No. of Drops	Arrangement Across	Arrangement Down	Dimensions, Inches High	Dimensions, Inches Wide	Dimensions, Inches Deep	Wt. Lbs. Each	*Price Each
4	2	2	6⅛	5⅛	3	3½	**$26.00**
6	3	2	6⅛	6⅝	3	4½	**32.00**
8	4	2	6⅛	8⅛	3	5¼	**38.00**
10	4	3	8⅛	8⅛	3	6	**44.00**
12	4	3	8⅛	8⅛	3	6½	**52.00**
16	6	3	8⅛	11⅛	3	8¼	**68.00**
20	5	4	10¼	9⅝	3	10	**84.00**
24	6	4	10¼	11⅛	3	12	**100.00**
Additional drops, each							**5.00**

NO. 409 FLUSH TYPE—ELECTRIC RESET



No. of Drops	Arrangement Across	Arrangement Down	Dimensions, Inches High	Dimensions, Inches Wide	Dimensions, Inches Deep	Wt. Lbs. Each	*Price Each
4	2	2	7⅛	5⅛	4	4½	**$44.00**
6	3	2	7⅛	6⅝	4	5	**50.00**
8	4	2	7⅛	8⅝	4	6½	**56.00**
10	4	3	9⅝	8⅝	4	7½	**62.00**
12	4	3	9⅝	8⅝	4	7¾	**70.00**
16	6	3	9⅝	11⅝	4	10½	**86.00**
20	5	4	11¾	10⅛	4	11	**102.00**
24	6	4	11¾	11⅝	4	12½	**118.00**

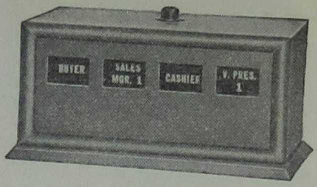
Additional drops, **$5.00** per drop.

Prices include steel wall box.

*For automatic reset feature, Nos. 403 and 409 annunciators, no extra charge.

EDWARDS ANNUNCIATORS

NO. 673 DESK TYPE ANNUNCIETTES



All metal cases. Small and compact. Standard finishes—mahogany, walnut, or oak, as specified. Any other spray finishes, add 5 per cent.

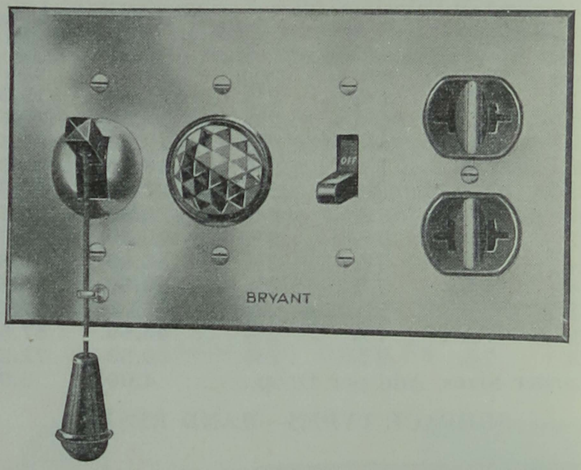
8-12 volt A.C. operation with buzzer signal standard. Any A.C. or D.C. voltage up to 24, no extra charge.

No. of Drops	Dimens., In. Height	Dimens., In. Width	Price Each	No. of Drops	Dimens., In. Height	Dimens., In. Width	Price Each
2	2½	4	**$30.00**	6	2½	7	**$54.40**
3	2½	4	**35.20**	8	2½	9	**67.20**
4	2½	5	**41.60**	**10**	**$3\frac{9}{16}$**	7	**80.00**
5	2½	7	**48.00**	----	------	--	--------

Larger sizes, add per drop, **$6.40.**

Depth. 2⅝ inches for all sizes.

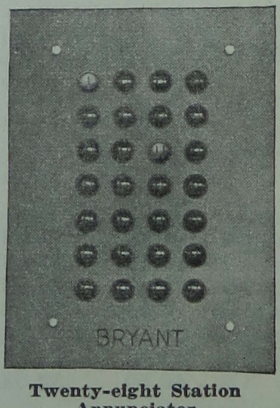
BRYANT HOSPITAL SIGNAL DEVICES



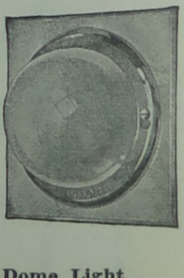
Nurse's Call, Bull's Eye, Doctor's Emergency Call and Duplex Convenience Outlet

The Bryant Electric Company manufactures a complete line of Hospital Signal Devices.

A few Hospital Devices are illustrated on this page, but, for complete information, write us for bulletins. In addition, our engineering department will be glad to cooperate with you in drawing up your specifications.



Twenty-eight Station Annunciator

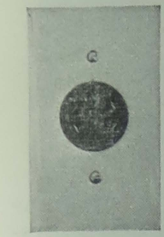


Dome Light

HOLTZER-CABOT
HOSPITAL SIGNAL SYSTEMS
NURSES' CALL SYSTEM — CALLING STATIONS

The equipment as described below shows the Nurses' Call Stations without the Phonacall. The Phonacall can, however, be included. Information on request.

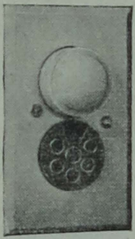
NO. 162002 — PRIVATE ROOM CALLING AND RESETTING STATION


No. 162002

This is principally a private-room station, but may be used in wards when no bed lamps are desired. This station is furnished with 8-foot flexible cord, easily detachable plug, and locking button. Receptacle is mounted on an adjustable yoke and plate fastens to yoke. Fits any standard single-gang switch box or outlet box cover.

For surface mounting, will fit National Metal Molding Fitting No. 439 or Wiremold No. 5748. Includes Premier cord, plug, and button.

NO. 162003 — WARD CALLING AND RESETTING STATION


No. 162003

The standard ward station is the same as No. 162002, with the addition of a bull's-eye signal to designate the patient calling. The bull's-eye is removable so that it is possible to renew lamp without taking the plate from the wall. Has same yoke mounting as 162002. Fits any standard outlet box with single-gang cover. Install five feet above floor. For surface mounting, will fit National Metal Molding fitting No. 439 or Wiremold No. 5748. Includes Premier cord, plug and button.

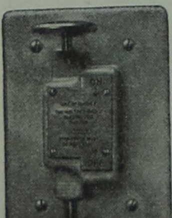
NO. 162006 — WALL-TYPE CALLING STATION

No. 162006

Designed for use in toilets, children's wards, and where extension cords are not desirable. This station is not equipped with cord and plug, but has a locking button mounted on a yoke to which plate is secured. Fits any standard deep-type outlet box with single-gang cover at least 2¾ inches deep. For surface mounting use Gem XS Box and National Metal Molding No. 441 or Wiremold No. 5751 fittings.

OPERATING-ROOM STATIONS

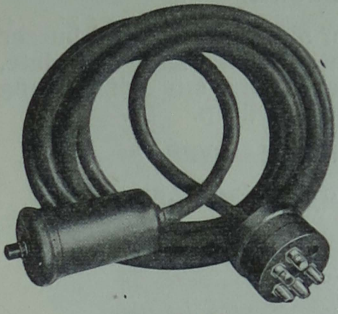
No. 162016—Explosion and Vaporproof


No. 162016

This station is explosion-proof as required by Underwriters' regulations. It is designed for foot or arm operation, and is particularly suitable for operating rooms, where it is required to call an attendant without breaking sterilization. Comes complete with special outlet box. Overall dimensions of front plate: 4 inches wide, 6 inches high.

Prices and detailed information on request.

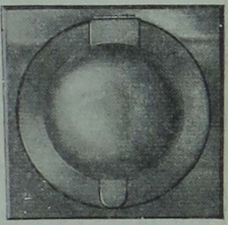
HOLTZER-CABOT
HOSPITAL SIGNAL SYSTEMS
NURSES' CALL SYSTEM — SIGNAL STATIONS EXTRA CORDS AND DOUBLE CORDS


No. 162120

All calling stations requiring cords are furnished complete with cord, plug, and button. We recommend that a reasonable number of extra cord, plug and button units be provided. As units wear out in service, extra units will be immediately available for replacement. Specify No. 162120.

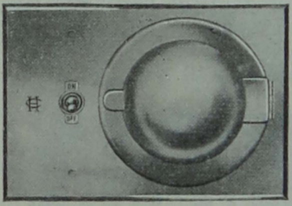
In case of emergency, where extra beds must be installed temporarily, a double unit having 2 cords and 2 buttons attached to the same plug may be substituted for the standard unit, thus giving calling service to 2 beds from one outlet. Specify No. 162121.

NO. 162026—DOME-TYPE CORRIDOR STATION


No. 162026

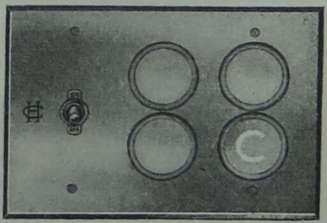
Designed for mounting over doors in corridors to indicate calls from wards, private rooms and other locations to Nurses passing through the corridors. Station is equipped with translucent plastic dome, (capacity up to 4 lamps) hinged to the face-plate and fastened with snap-catch for easy access to lamps. Fits any standard 2-gang switch box or 2-gang cover. For surface mounting, one and two-lamp only, furnished to fit National Metal Molding No. 440 or Wiremold No. 5747 2-gang fittings.

NO. 162027 — DOME-TYPE PILOT AND BUZZER STATION


No. 162027

Designed for use with Utility Rooms and Diet Kitchens. Equipped with translucent plastic dome, concealed buzzer and cutoff switch. Dome has capacity for up to 4 lamps. Fits any standard deep-type outlet box with 3-gang cover to be not less than 2¾ inches deep. For surface mounting, requires a special mat.

NO. 162028 — GB ANNUNCIATOR-TYPE PILOT AND BUZZER STATION



No. 162028

Designed for use in Duty Rooms and Diet Kitchens where sections, room or ward designation is desired. Has concealed buzzer with cutoff switch. Lamp bull's-eye lettered to order. The 2-lamp station fits an outlet box with 2-gang cover, not less than 2¾ inches deep. Additional pairs of bull's-eyes may be furnished up to and including eight lamps.

Prices and detailed information on request.

HOLTZER-CABOT HOSPITAL SIGNAL SYSTEMS

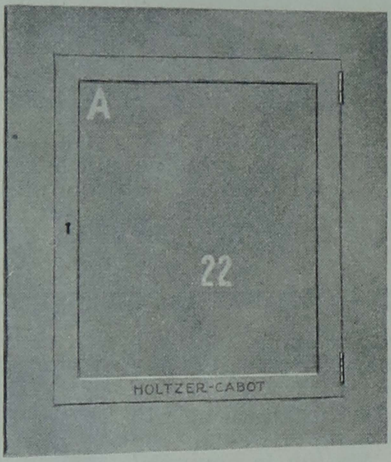
NURSES' CALL SYSTEM — SIGNAL STATIONS

No. 162031 — Buzzer Station
(Not Shown)

This station consists of a special hospital buzzer with cut-off switch mounted on a single-gang plate. The buzzer is concealed. Fits any single-gang switch box at least 2¾ inches deep.

LAMP ANNUNCIATORS

No. 162052 — Flush or Surface Annunciator

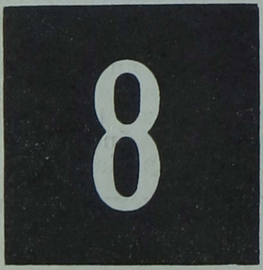


No. 162052

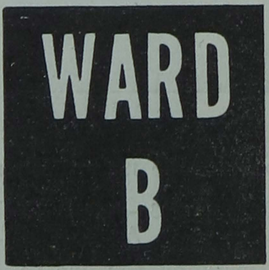
For use at Nurses' Desks and other locations as desired. Indicates instantly and definitely the Patient or Patients calling.

Case and trim is metal with hinged door and lock for easy access to lamps. Each lamp compartment, easily accessible, is designed to prevent cross lighting. Standard annunciators include concealed buzzer with cutoff switch. Standard finish is white enamel. Overall dimensions of surface annunciators are 1½ inches more in length and width than flush type. When Phonacall is used, the Phonacall Master Control Station replaces the annunciator at the Nurses' Station.

TYPICAL MARKINGS



Maximum—3 Characters



Maximum—2 Lines
5 Characters Each

Actual size, 1¼ x 1¼ inches. The markings pictured are actual size and type used as standard on the above annunciators. Special markings will be supplied as desired. Note the absence of stencil cross bars. The figures and letters are clear and unmistakable. Replacements and changes of annunciator fronts are easily made.

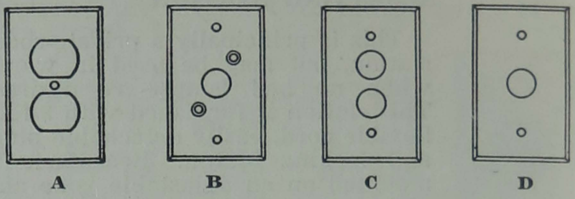
Note: When Phonacall is used the Phonacall Master Control Station is used instead of the above annunciator at the Nurses' Station.

Prices in detailed information on request.

HOLTZER-CABOT HOSPITAL SIGNAL SYSTEMS

SPECIAL PLATE COMBINATIONS

Below are shown typical plates which can be mounted in gang with Holtzer-Cabot nurses' call units. Plates only are furnished. Receptacles and jacks furnished to order. The combinations below are suggestive only. Plates for other types of receptacles may be furnished to order.



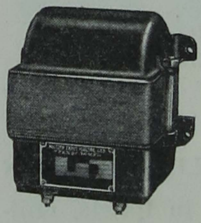
A — For duplex convenience receptacles. Can be had for single receptacles also. Specify catalog number and make of receptacle.

B — For Western Electric Co. No. 367 telephone jack. This jack is the one generally used for public telephone service.

C — Two holes for radio jacks. In ordering, type of radio jack to be used must be specified.

D — For radio jacks. Plates can be supplied for any standard make. It is best to submit a sample of the jack, because of changes and new products which is a condition at this time in radio application.

TRANSFORMERS



No. 162080

The Nurses' Call Systems are designed to operate on a step-down transformer connected to the lighting or power circuit and delivering 12 volts. The transformers, of the heavy duty insulated type, have a particularly low core loss, and will cary full rated load without undue heating or voltage drop.

In ordering, give the voltage of the primary current.

OTHER SIGNALING SYSTEMS

In addition to the Signaling Systems listed on another page, Holtzer-Cabot also manufacture a complete line of Signal Systems for:

Hospitals—Staff Register, Doctors' Paging, Phonacall (Patient to Nurse Communication), Clock, Fire Alarm systems and Night Lights.

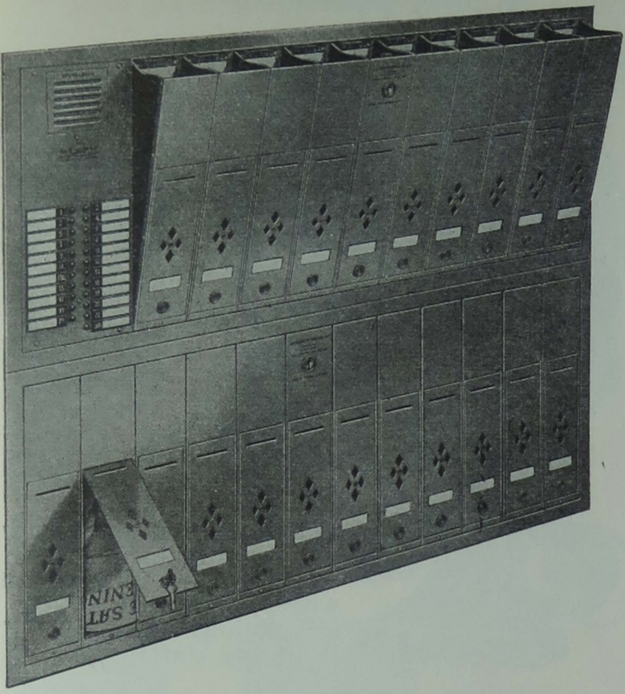
Schools —Fire Alarm, Clocks, Program Bell, and Laboratory Distribution Systems.

Public and Industrial Buildings — Fire Alarm, Watchman's Report, Clock, Voice Paging Systems.

Holtzer-Cabot's sixty-five years as specialists in Signaling Systems, assures the finest Engineering of systems and equipment to meet today's modern requirements.

Prices and complete information on request.

COUCH APARTMENT HOUSE MAIL BOX AND TELEPHONE EQUIPMENT



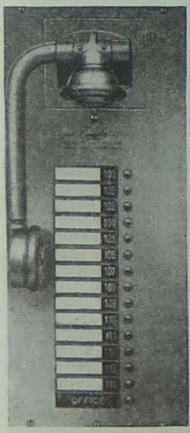
22 Couch Mail Boxes and No. 74C Loud Speaking Phone with 22 Suite Calling and 1 Janitor Buttons

The Couch Tilting Mail Box is approved by the U.S. Post Office Department for apartment houses of 3 or more suites, and is manufactured for mounting with vestibule telephone, speaking tube and call button unit or with call buttons only.

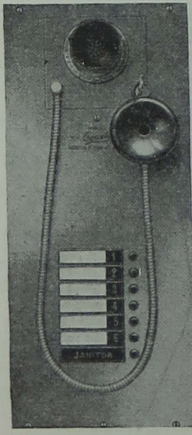
Combination mail box and telephone outfits may be supplied for any number of suites from 3 up and may be mounted in single, double or triple row mounting. Ask for special bulletin with complete data.

VESTIBULE TELEPHONES

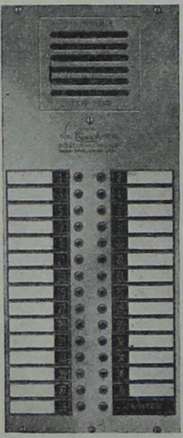
Common and Sectional Talking Systems



No. 74A



No. 74B



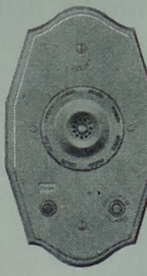
No. 74C

Cat. No.	Type	Price Each
74A	Rocker Arm	$47.50
74B	Amored Cord	28.90
74C	Cordless (Loud Speaking)	37.00
	Extra for Each Button	1.10
73	Mail Box, each	4.00

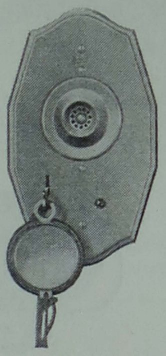
COUCH APARTMENT HOUSE SUITE PHONES

These suite phones are made for both flush and surface mounting. Mechanism is mounted in a solid moulded recessed block which assures permanent alignment of all parts under all conditions.

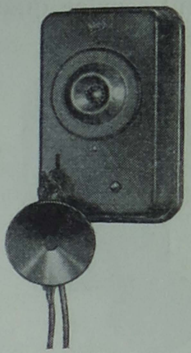
NOS. 48, 49, 50 AND 51 PHONES



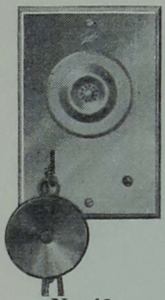
No. 51 Flush Speaker Type



No. 50 Flush Type



No. 49 Surface Type



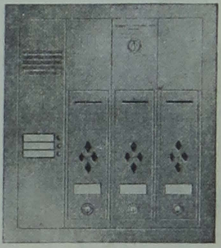
No. 48 Flush Type

No. of Buttons	Phone Nos.	Price Each
0	48, 49, 50, 51	$11.40
1	48, 49, 50, 51	12.70
2	48, 49, 50, 51	14.00
3	48, 49, 50, 51	15.30

Finish: Flush Phones—Sprayed brass. Surface Phones—Black.

P. O. APPROVED "TILTING" MAIL BOXES

Speaking Tube and Call Button Types

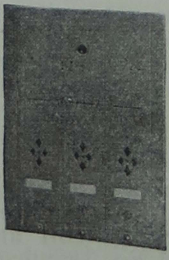


Offering the advantages of Couch Tilting Mail Boxes for the smaller apartments where vestibule telephone installation is not necessary. Flush frame contains extra panel with compartment for speaking tube, and call-buttons with card holders.

Combinations of 3 to 8 boxes. Sprayed brass finish.

With Speaking Tube Compart. and Buttons Cat. No.	With Buttons Only Cat. No.	No. of Mail Boxes	Wall Opening Inches 16⅜" High	Price Each
7323	73203	3	14½ wide	$16.80
7324	73204	4	18 wide	22.40
7325	73205	5	21½ wide	28.00
7326	73206	6	25 wide	33.60
7327	73207	7	28½ wide	39.20
7328	73208	8	32 wide	44.80

Boxes with Call Buttons in Frame

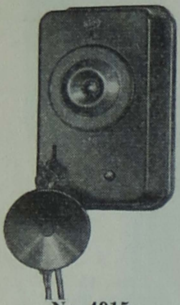


Cat. No.	No. of Boxes	Wall Opening Inches Wdth.	Hght.	Price Each
7313	3	11	16⅜	$14.00
7314	4	14½	16⅜	18.66
7315	5	18	16⅜	23.32
7316	6	21½	16⅜	27.98
7317	7	25	16⅜	32.64
7318	8	26½	16⅜	37.30
7319	9	32	16⅜	41.96
73110	10	35½	16⅜	46.62
73111	11	39	16⅜	51.28
73112	12	42½	16⅜	55.94

COUCH TWO-STATION TELEPHONE SYSTEM

(System PLA)

This system is for two station private line service between any two points up to 2000 feet apart. Particularly recommended for use between: House and garage; clerk and stock room; upstairs and downstairs; counter and credit department; desk and service quarters; box office and theatre manager.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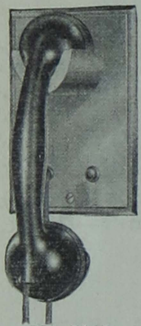
No. 5915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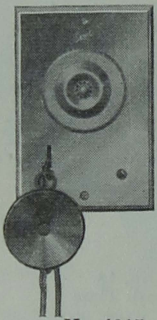
No. 5315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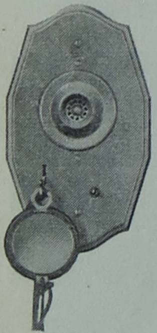

No. 5015

Cat. No.	Description	Price Each
4915	Surface Wall Phone	$12.70
5915	Desk Handset Phone	25.80
5215	Flush Wall Phone with Handset	22.00
5315	Surface Wall Phone with Handset	22.00
4815	Flush Wall Phone	12.70
5015	Flush Wall Phone	12.70
1060A*	Choke Coil	2.00

*Use one if 3-wire circuit is employed.

INSTALLATION DATA

Two stations are the limit for this system. The following table gives the sizes of wires and the number of dry cells required for satisfactory operation over varying distances.

Two Conductor Circuit

Distance Between Phones	B & S Gauge No. 18	No. 16	No. 14
Up to 500 feet	2 cells at each end		
500 ft. to 750 ft.	3 cells at each end	2 cells at each end	
750 ft. to1000 ft.		3 cells at each end	2 cells at each end
1000 ft. to 2000 ft.			3 cells at each end

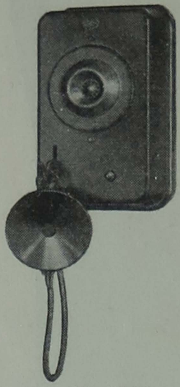
Three Conductor Circuit

Up to 1000 ft.	3 cells and a choke coil at one end only and No. 18 wire
1000 ft. to 2000 ft.	5 cells and a choke coil at one end only and No. 18 wire

COUCH TELEPHONE SYSTEMS

COMMON RINGING—COMMON TALKING

(System B1A4)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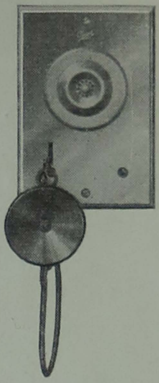
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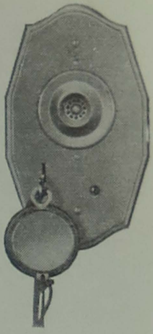

No. 5016

No. 5916

This system is designed for installations ranging from 3 to 8 instruments where it is desired to call all stations simultaneously from any station.

Recommended for small manufacturing plant, warehouse, public garage, retail store or residence. Often times in such places an individual is wanted hurriedly and his whereabouts in the premises unknown. By means of code ringing he may be signalled from any station. The signal is sounded at all instruments and the call may be answered at any nearby station.

Wiring—Four wires are run common to all instruments. Wires should not be less than No. 18 B&S gauge. 4 to 6 dry cells are required together with a 1060A choke coil.

Cat. No.	Description	Price Each
4916	Surface Wall Phone	$12.70
5916	Desk Handset Phone	25.80
5216	Flush Wall Phone with Handset	22.00
5316	Surface Wall Phone with Handset	22.00
4816	Flush Wall Phone	12.70
5016	Flush Wall Phone	12.70
1060A	Choke Coil (Use 1 to a System)	2.00

INSTALLATION DATA

Eight stations are the limit for this system. One battery of four to six dry cells supplies both ringing and talking current. A choke coil must be connected in series with the battery and talking circuit. Battery choke coil should be located as near the center of the wiring as possible.

Distance Limit Between the 2 End Stations

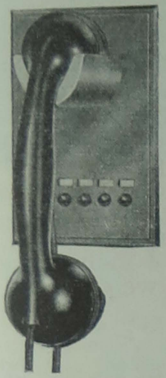
No. of Stations	Using No. 18 B. & S. Copper Wires	Using No. 16 B. & S. Copper Wires
3	565 ft.	850 ft.
4	530 ft.	800 ft.
5	500 ft.	750 ft.
6	465 ft.	700 ft.
7	430 ft.	650 ft.
8	400 ft.	600 ft.

Four conductors are run between the two end stations and branched or looped to each intermediate station. Three of the wires are also branched to the battery and choke coil.

COUCH TELEPHONE SYSTEMS

SELECTIVE RINGING—COMMON TALKING INTERCOMMUNICATING PHONES

(System B2A)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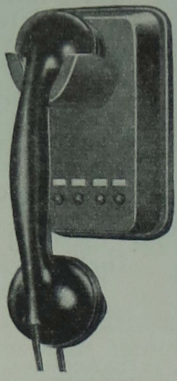
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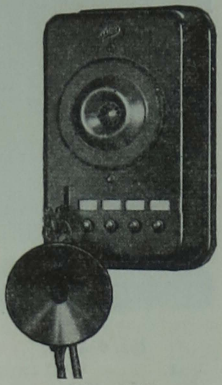
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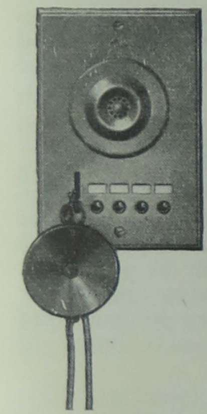
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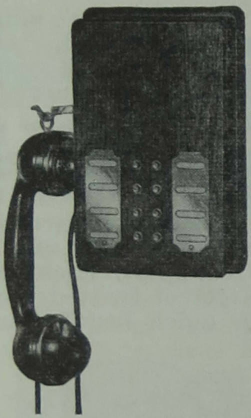
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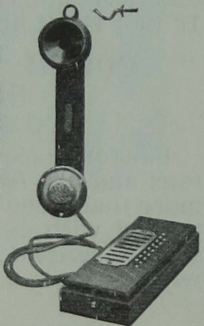
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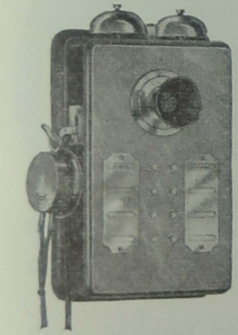
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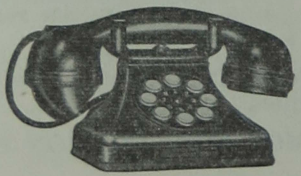

No. 5947

Designed for use in small suite of offices, small factory, store, theatre, or residence, but may be used to advantage in practically every class of commercial and industrial organizations. Phones are made in 4, 8, and 12 button size according to style selected.

Wiring—Use braided cable for dry indoor runs or lead covered cable for outdoor runs, conduit or runs in damp places. Cable is run common to all stations with one No. 22 wire for each phone plus three No. 18 battery wires. Use No. 6-1-12 "Powerite" unit or 4 dry cells and No. 1060A coil.

COUCH TELEPHONE SYSTEMS

SELECTIVE RINGING—COMMON TALKING INTERCOMMUNICATING PHONES

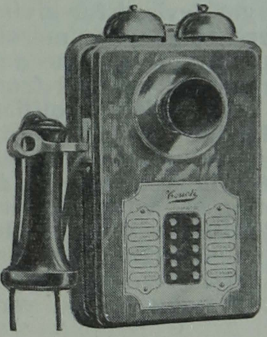
(System B2A Continued)

Phones listed are illustrated in preceding column.

Cat. No.	No. of Buttons	Description	Price Each
5247	4	Flush Wall Handset Phone	**$26.60**
5347	4	Surface Wall Handset	**26.60**
4947	4	Wall Phone	**16.60**
4847	4	Flush Wall Phone	**16.60**
6527	8	Flush Wall Phone	**25.00**
6547	12	Flush Wall Phone	**30.00**
64817	8	Wall Phone with Handset	**32.00**
64827	12	Wall Phone with Handset	**35.00**
2117	4	Handset with Button Pad	**25.00**
2127	8	Handset with Button Pad	**30.00**
2137	12	Handset with Button Pad	**35.00**
6427	8	Wall Phone	**22.00**
6447	12	Wall Phone	**25.00**
5947	4	Desk Handset	**31.60**
5987	8	Desk Handset	**36.60**
1060A	....	Choke Coil (1 to System)	**2.00**

SELECTIVE RINGING, SELECTIVE TALKING INTERCOMMUNICATING PHONES

(System B12A)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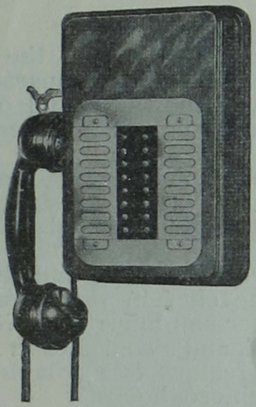
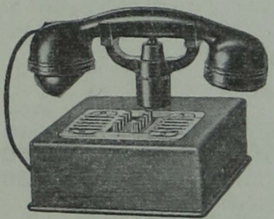

No. 412A


No. 4010A*

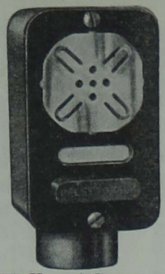
This system is recommended for use in banks, law, administrative and industrial offices; factories, large residences, theatres, or in any organization where efficient, economical intercommunicating service is required. Several separate conversations may take place simultaneously and a conference between several stations may be held if desired.

Cat. No.	No. of Buttons	Description	Price Each
391A	10	Wall Phone	**$33.50**
392A	16	Wall Phone	**41.40**
393A	20	Wall Phone	**46.40**
411A	10	Wall Phone with Handset	**43.30**
412A	16	Wall Phone with Handset	**52.50**
413A	20	Wall Phone with Handset	**57.00**
4010A	10	Desk Phone with Handset*	**56.70**
4020A	16	Desk Phone with Handset*	**70.70**
4030A	20	Desk Phone with Handset*	**77.40**
420A	10	Flush Wall Phone	**43.30**
421A	16	Flush Wall Phone	**52.50**
422A	20	Flush Wall Phone	**57.00**

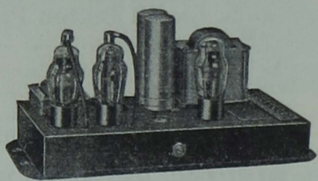
*Complete with wall terminal box connected by 6 feet of flexible cable.

COUCH "ORDERITE" SYSTEMS

Type OP Speaker—Amplifier
All metal with crackel finish



Wall and Counter
Type Microphone



Type OP Speaker—Amplifier
With cover removed

The "Orderite" is the simplest, most practical and most effective apparatus yet devised for giving one-way messages and orders. The user merely presses a button or lever on the microphone and talks in a normal voice that may be heard from 25 to 100 feet away from the speaker-amplifier. In cafeterias and restaurants the "Orderite" will restore quietness and order by eliminating shouting. Orders are spoken into the microphone in an ordinary voice and the message will be heard by the chef in the noisiest kitchen through the speaker-amplifier. This equipment is made for use on AC, and also comes in universal models. Signal-back feature is available with counter and wall type microphones.

Speaker-Amplifier

Cat. No.	Description	Price Each
OP-1	110 Volts, 60 Cycles, AC	**$67.00**
OP-3	Universal, AC-DC	**72.50**

Microphones

Wall Type Microphones

OT-3	For Use with OP-1	**12.40**
OT-4	For Use with OP-3	**13.00**

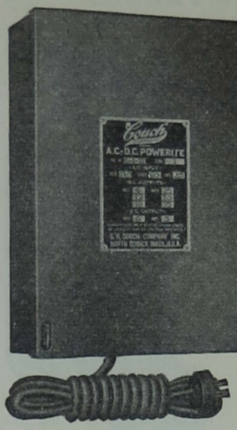
Counter Type Microphones

OT-5	For Use with OP-1	**12.40**
OT-6	For Use with OP-3	**13.50**

Special "Orderite" cable (6-conductor) recommended for connecting microphone and speaker-amplifier.

COUCH "POWERITE" UNIT

AC-DC RECTIFYING UNIT FOR USE ON TELEPHONE SYSTEMS



No. 6-1-12

This unit may be used in place of batteries on the majority of Couch Apartment house and Private Telephone Systems. The "Powerite" rectifies 110-volt 60-cycle AC to DC suitable for telephone work. It is noiseless, odorless, requires no attention, ready for use 24 hours a day, has no moving parts and requires no acid, water or liquid of any sort.

Size, 12 inches high, 8 inches wide, 4 inches deep.

Shipping weight, 17¼ pounds.

Cat. No.	AC Input Volts	AC Input Cycles	DC Output Volts	DC Output Amps.	AC Output Volts Watts	Price Each
6-1-12	110	60	6	.5	6 at 25 12 at 50 18 at 75	**$32.00**

New bulletin on "Powerite" units of larger capacity for lamp switchboard, "Autophone" and other telephone and signalling systems calling for 12 or 24-volt direct current, furnished on request.

COUCH "NUMBER 200" LINE OF PRIVATE PHONES

TWO STATION SYSTEM 200PL

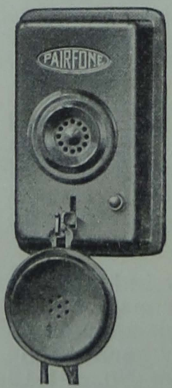
Pairfones are packaged in attractive display cartons and are for use between any two points not more than 2000 feet apart. Each pair of phones is packed with 40 feet of twisted 3-wire and Blake staples ready for quick installation. Instructions with each set.

PAIRFONE
EFFICIENT TELEPHONE SERVICE BETWEEN ANY TWO POINTS IN THE
HOME OFFICE SHOP
BETWEEN TWO CAMPER-HOUSE AND ROADSIDE STAND-HOUSE AND BARN
ECONOMICAL
Couch
Couch
PAIRFONE
THE QUICK WAY TO TALK THINGS OVER

Two No. 202 Pairfones

Description	Price Complete Set
1 Pair No. **202** Pairfones with Wire and Staples	**$6.60**

COMMON RING, COMMON TALK SYSTEM 200CR



No. 204

For installations ranging from 3 to 6 phones all on a common circuit. Pressing button on any phone operates buzzers on all other phones and call may be answered from any phone. Use No. 204 Wall Phone and 1 No. 2060A coil at battery. Run 4 wires common to all phones and use one dry cell per phone.

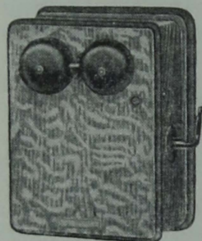
Cat. No.	Description	Price Each
204	Wall Phone	**$4.80**
2060A	Coil	**1.50**

KELLOGG TELEPHONE EQUIPMENT

NO. 950-LR MASTERPHONE

This beautiful, all-bakelite Masterphone was especially designed for magneto service where long, heavily loaded lines and noisy locations require better transmission and reception than the average. This phone is equipped with the TRIAD (anti-side tone) circuit and a Kellogg non-positional transmitter. The TRIAD circuit makes for better, more natural conversations because room noises do not interfere with reception. At the same time it gives improved transmission. The patented spherical electrode construction of the non-positional transmitter eliminates dead talking positions. It reproduces the full voice range with greater clarity and thus provides all the naturalness of a face-to-face conversation.

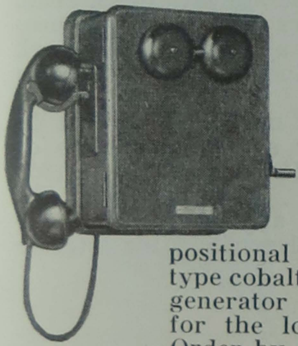
MAGNETO DESK SET BOX



For use with the 950-LR Masterphone described above. This compact, sturdy desk set box is built to stand many years of hard usage. Choice of 3- and 5-bar generators to deliver ample current for the job. Ringer will not stick or freeze. Order by code number.

No. **2528**	Standard	3-bar gen.,	1000-ohm ringer
No. **2561**	Heavy-duty	5-bar gen.,	1600-ohm ringer
No. **2562**	Heavy-duty	5-bar gen.,	2500-ohm ringer

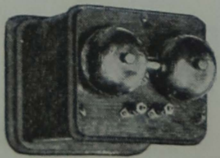
MAGNETO WALL MASTERPHONE



This Masterphone consists of a standard Kellogg oak cabinet and a bakelite handset suspended on a special Masterphone hookswitch. Perfect reception and transmission are assured with this handset which has the famous patented non-positional transmitter and the capsule-type cobalt magnet receiver. The 5-bar generator will supply ample current for the longest, heavily-loaded line. Order by code numbers.

No. **3809M**	Standard	3-bar gen.,	1000-ohm ringer
No. **3812M**	Heavy-duty	5-bar gen.,	1600-ohm ringer
No. **3859M**	Heavy-duty	5-bar gen.,	2500-ohm ringer

NO. 37 EXTENSION BELL

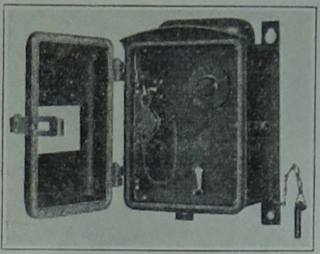


Can be used with an extension phone or by itself to signal at a distance or in noisy locations where the telephone might not be heard. Consists of a neat solid oak cabinet and any of the following ringers. (No condenser).

No. **37 SA**	1000-ohm ringer
No. **37 SD**	1600-ohm ringer
No. **37 SG**	2500-ohm ringer

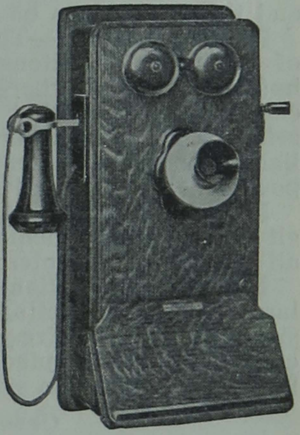
KELLOGG TELEPHONE EQUIPMENT

WEATHERPROOF OUTDOOR TELEPHONE



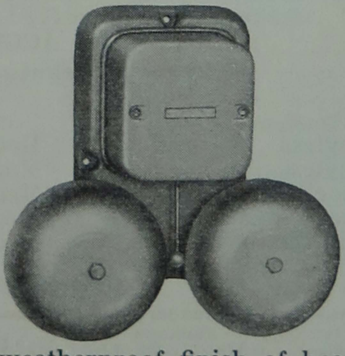
A moistureproof telephone specially treated and designed to meet the exacting requirements of outdoor service. It is famous for its remarkable transmission, reception and ringing efficiency. The cast-iron housing is ventilated to prevent condensation of moisture, and has a cast-in shelf for three dry batteries. A standard Kellogg 5-bar generator mounts on a sliding bakelite shelf. A Kellogg standard non-adjustable ringer is used and the 3-inch adjustable brass gongs are protected by a heavy steel hood. Order by code number 4883 (when specified a 6-bar generator can be furnished).

MAGNETO WALL TELEPHONE



A sturdy, compact wall telephone that will give many years of trouble-free service Transmitter and receiver, although ruggedly constructed, are extremely sensitive and will give unequaled transmission over either long or short lines. The ringer is Kellogg's famous non-adjustable, non-sticking type. The hook-switch assures positive contact and will remain free from rattle. Parts are conveniently located and easily accessible in solid oak cabinet. Length, 19 inches; depth, 9⅜ inches; width of backboard, 8¾ inches.

LOUD RINGING BELL

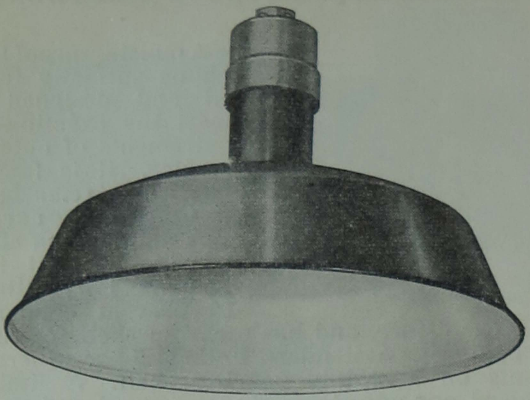


This loud ringing weatherproof extension bell is especially designed for outdoor locations, or in noisy locations where a loud ring is required. The efficient bells operate perfectly under all climatic conditions. The 6-inch steel gongs are cadmium plated. It has a weatherproof finish of heavy, durable, gray zinc paint.

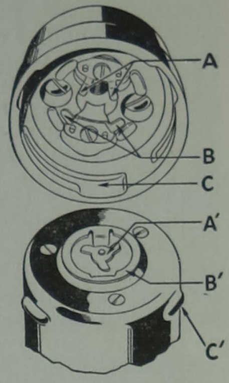
No. **65 SA**	1000-ohm ringer
No. **65 SD**	1600-ohm ringer
No. **65 SG**	2500-ohm ringer

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

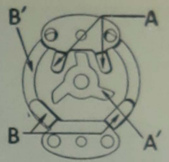
LOCKLITE REFLECTORS AND HOODS



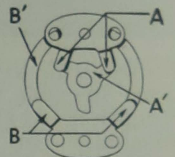
Locklite Conduit Mounting Hood with Typical RLM Standard Dome Reflector



Locklite Hood and Reflector Electrical Contacts A and A', B and B', also Positioning Slots C and Lugs C'



Position of Reflector and Hood Contacts Before 60° Turn to "Locked" Position



Position of Reflector and Hood Contacts After Reaching "Locked" Position

Westinghouse Locklite Units are two-piece construction providing easy removal of the complete reflector and lamp from the hood. Cleaning and maintenance are simplified.

Features

Quick Handling—The reflector and lamp are detachable from the hood, as a unit, by a simple 60° counter-clockwise turn. Set screws, latches and threaded necks have been eliminated.

Positive Locking—Three lugs on the steel cap of the reflector extension engage three slots in hood no matter where inserted. The electrical contacts are such that the lamp lights when the reflector is locked securely in position. Hence the light automatically serves as a signal indicating positive electrical and mechanical contact.

Interchangeability of Reflectors—One hood fits all reflectors both medium and mogul type, making all Locklite Units interchangeable.

Ease of Installation—Wiring is facilitated by large, front-connecting binding screws and straight-through wire-ways in the porcelain receptacle. The receptacle should not be removed from the hood when wiring.

Construction

The complete unit consists of a reflector and a hood. Hoods are available for either ½-inch or ¾-inch conduit or 3¼-inch or 4-inch outlet box mounting.

The hood consists of a durable, aluminum-plated die casting and a porcelain receptacle. Heavy-duty springs assure positive contact with the reflector socket when the reflector is locked in position.

It is impossible to reverse polarity between the socket and receptacle, or to short-circuit the unit during the locking or unlocking operation.

A heavy, hexagonal nut is an integral top part of the die casting and is provided with a ¼-inch slotted set screw for locking the hood to the conduit.

The outlet box hood is supplied with a steel cover for direct attachment to a standard 3¼-inch or 4-inch outlet box.

The reflectors are of highest grade porcelain enameled steel. The socket is a standard keyless type with all metal parts nickel-plated. The Standard Dome, Deep Bowl and Symmetrical Angle Reflectors conform strictly to the specifications of the RLM Standards Institute and are so labeled.

Finish—Reflectors are porcelain enameled as follows: one ground coat all over, two white coats inside and one green coat outside with black bead. Glassteel Diffuser Reflectors are similarly protected, except the color is all white with black reflector bead. Locklite hoods are finished in matte aluminum.

Glassteel diffuser globes may be obtained in opal, color correction (for a better measure of color discrimination), or color matching glass (for approximating daylight).

Approval—Locklite units are approved by the National Board of Fire Underwriters for interior or exterior application.

ACCESSORIES

Locklite Sockets Only

Cat. No.	Type	Size	Standard Package Quantity	Standard Package Wt. Lbs.	Price Each
892283	Keyless	Medium	10	10	**$0.55**
892284	Keyless	Mogul	10	15	**1.10**
892297	Shock Absorbing	Medium	10	10	**.65**
892298	Shock Absorbing	Mogul	10	15	**1.20**
892289	Pull Chain	Medium	10	10	**1.35**

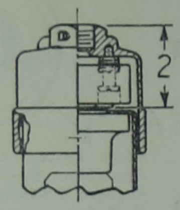
Glassteel Diffuser Globes

Lamp Size Watts	Globe Dimens.		Standard Package		Opal		Color Correction		Color Matching	
	Diam. Inches	Fitter Inches	Quan.	Wt. Lbs.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
150–200	10	5	4	12	**888333**	**$2.30**	**888868**	**$2.50**	**888869**	**$2.80**
300–500	12	6	4	18	**888334**	**3.60**	**888870**	**4.00**	**888871**	**4.35**
750–1000	16	8	2	16	**888335**	**7.25**	**888872**	**8.25**	**888873**	**9.00**

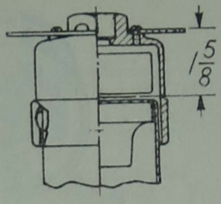
Note: For Installation design data for RLM Standard Dome Reflectors, see page on Bayonet Heel Reflectors and Sockets.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

LOCKLITE REFLECTORS AND HOODS

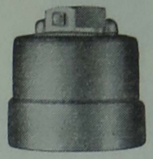


Section of ½-Inch Conduit Hood



Section of Outlet Box Hood

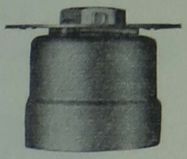
½-Inch* Conduit Hoods



Cat. No.	Price Each
892339	$0.80

Std. Pkg. 10
Lamp Wattage, 50-1500

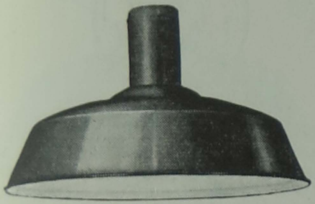
Outlet Box Hoods



Cat. No.	Price Each
892341	$0.80

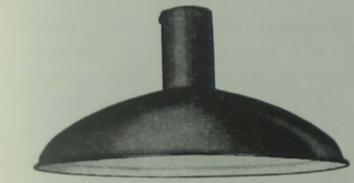
Std. Pkg. 10
Lamp Wattage, 50-1500

RLM STANDARD DOME REFLECTOR UNIT



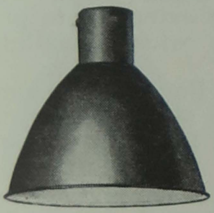
	Reflector Only					Complete Unit		Complete Unit	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
100*	892529	$2.80	12	7	10	892545	$3.60	892561	$3.60
150	892530	3.00	14	8¼	10	892546	3.80	892562	3.80
200	892531	3.60	16	9⅜	10	892547	4.40	892563	4.40
300–500	892532	4.90	18	10⅝	5	892548	5.70	892564	5.70
750–1500	892533	6.80	20	13½	5	892549	7.60	892565	7.60

SHALLOW DOME REFLECTOR UNIT



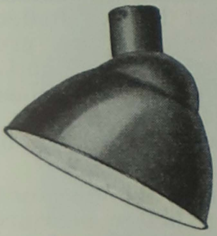
	Reflector Only					Complete Unit		Complete Unit	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
75–100	892534	$2.80	12	6⅜	10	892550	$3.60	892566	$3.60
150	892535	3.00	14	7½	10	892551	3.80	892567	3.80
200	892536	3.60	16	8½	10	892552	4.40	892568	4.40
300–500	892537	4.90	18	9¾	5	892553	5.70	892569	5.70

RLM STANDARD DEEP BOWL REFLECTOR UNIT



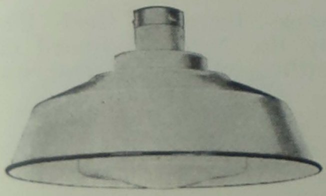
	Reflector Only					Complete Unit		Complete Unit	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
100*	892538	$2.60	8	7⅝	10	892554	$3.40	892570	$3.40
150–200**	892539	3.00	10	9¾	10	892555	3.80	892571	3.80
300–500	892540	4.80	12	11¼	5	892556	5.60	892572	5.60
750–1500	892890	6.00	10	14⅞	5	1119707	6.80	1119708	6.80

RLM STANDARD SYMMETRICAL ANGLE REFLECTOR UNIT



	Reflector Only					Complete Unit		Complete Unit	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
100*	892541	$2.45	8	9	10	892557	$3.25	892573	$3.25
150–200†	892942	2.95	10	10¾	10	1119477	3.75	1119478	3.75
300–500	892543	4.55	14	14½	5	892559	5.35	892575	5.35
750–1500	892544	7.20	16	19	5	892560	8.00	892576	8.00

GLASSTEEL DIFFUSER UNIT



	Reflector Only					Complete Unit With Opal Globe		Complete Unit With Opal Globe	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
150–200	892577	$6.20	18	9⅜	4	892580	$9.30	892583	$9.30
300–500	892578	8.50	20	11⅛	4	892581	12.90	892584	12.90
750–1000	892579	10.85	24½	14	2	892582	18.90	892585	18.90

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*Not approved as RLM standard when used with lamps less than 100 watts.

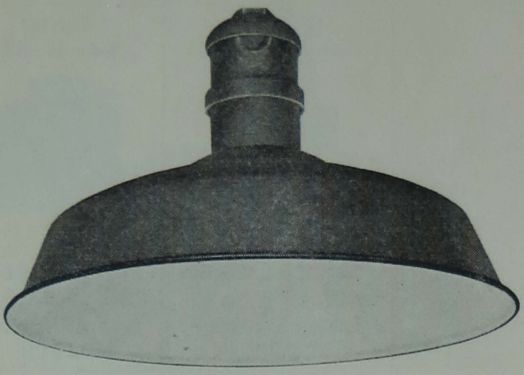
**Not approved as RLM standard when used with 150-watt lamp.

†Not approved as RLM standard when used with 200-watt lamp.

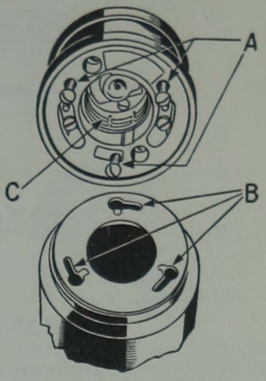
*Hoods for ¾-inch conduit will be furnished when specified, at same price.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

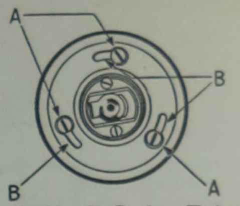
BAYONET HEEL REFLECTORS AND SOCKETS



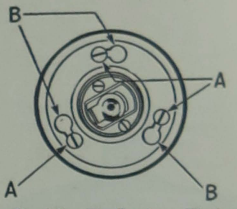
Bayonet Heel Reflector Unit with RLM Standard Dome Reflector



Bayonet Heel Reflector and Hood Showing Bayonet Slots B in Reflector Extension for Engaging Screws A, also Lamp Socket C in Hood



View Inside Reflector Extension Showing Position of Engaging Screws A Entering Bayonet Slots B Before Clockwise Turn to Correct Position for Positive Attachment.



View Inside Reflector Extension Showing Engaging Screws A Tightened in Bayonet Slots B After Clockwise Turn to the Correct Position for Positive Attachment

Westinghouse Bayonet Heel Reflector Units are of two-piece construction for ease of installation and economical replacement of damaged reflectors or hoods.

Features

Weatherproof Unit—Through the use of a water-drip formed by the bayonet heel porcelain socket jutting down over the top of the reflector.

Positive Attachment—Three steel screws on the bottom of the porcelain socket engage in bayonet slots in the reflector extension. This assures positive attachment of the reflector to the porcelain socket, and automatically provides the correct light center position for proper distribution of light.

Interchangeability of Reflectors—All standard shapes of bayonet heel reflectors for medium base lamps may be used with the standard medium socket. All reflectors for mogul base lamps may be used with the mogul socket.

Ease of Installation—The porcelain socket is a front-connected type with binding screws, which facilitates easy wiring without handling the reflector.

Construction

The complete unit consists of a reflector and porcelain socket assembly and is available for ¼-inch or 4-inch outlet box, ½-inch or ¾-inch conduit, or 90° ½-inch conduit mounting.

The conduit socket consists of a keyless, porcelain socket body with all metal parts nickel-plated, and a cast-iron cap which is attached to the socket body by 2 cadmium-plated machine screws.

The outlet box socket consists of a keyless, porcelain socket body with all metal parts nickel-plated, and a 14-gauge, sheet-steel outlet box cover which is attached to the socket body by 2 cadmium-plated screws.

The reflectors are of the highest grade porcelain enameled steel, with a fibre gasket between reflector heel and socket and a soft copper washer on the inside of the reflector extension to protect the porcelain from damage when installing or removing the reflector.

The Standard Dome, Deep Bowl, and Symmetrical Angle Reflectors conform strictly to specifications of the RLM Standards Institute and are so labeled.

Finish—The cast-iron socket cap is protected by two coats of green baked enamel, to match the finish on the porcelain socket body. Reflectors are porcelain enameled as follows: one ground coat all over, two white coats inside, and one green coat outside with black bead. Glassteel Diffuser Reflectors and sockets are similarly protected, except the color is all white with black reflector bead.

Glassteel diffuser globes may be obtained in opal, color correction (for a better measure of color discrimination), or color matching glass (for approximating daylight).

Approval — Westinghouse Bayonet Heel Reflectors are approved by the National Board of Fire Underwriters for either interior or exterior application.

ACCESSORIES

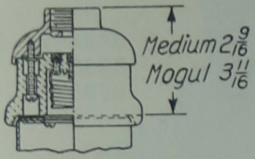
Bayonet Heel Sockets Only

Cat. No.	Type*	Size	Standard Package		Price Each
			Quantity	Wt. Lbs.	
338762	Keyless (Green)	Medium	10	10	**$1.00**
338763	Keyless (Green)	Mogul	10	15	**1.55**
349448	Keyless (White)	Medium	10	10	**1.50**
349447	Keyless (White)	Mogul	10	15	**2.50**

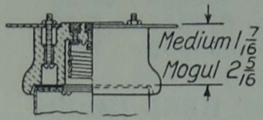
*Only Keyless Sockets can be supplied for Bayonet Heel Units.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

BAYONET HEEL REFLECTORS AND SOCKETS



Section of ½-Inch Conduit Hood



Section of Outlet Box Hood

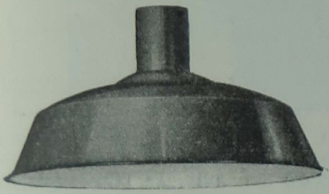
½-Inch★ Conduit Hoods

Cat. No.	Price Each
336387§	$1.30
336391■	1.95

Outlet Box Hoods

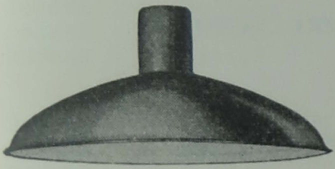
Cat. No.	Price Each
336389§	$1.30
336393■	1.95

RLM STANDARD DOME REFLECTOR UNIT



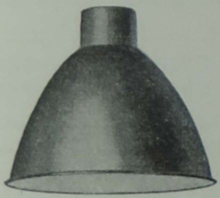
	Reflector Only					Complete Unit		Complete Unit	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
100*	W306100	$2.00	12	5¼	10	343701	$3.30	343707	$3.30
150	W306150	2.20	14	6⅜	10	343702	3.50	343708	3.50
200	W306200	2.80	16	7½	10	343703	4.10	343709	4.10
300–500	W306500	3.35	18	8⅛	5	343704	5.30	343710	5.30
750–1500	W306000	5.25	20	11⅛	5	343705	7.20	343711	7.20

SHALLOW DOME REFLECTOR UNIT



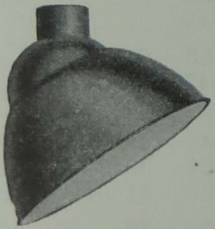
	Reflector Only					Complete Unit		Complete Unit	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
75–100	W303100	$2.00	12	4½	10	343523	$3.30	343526	$3.30
150	788223	2.20	14	5⅝	10	789102	3.50	789100	3.50
200	787576	2.80	16	6¾	10	789103	4.10	789101	4.10
300–500	W303500	3.35	18	7¼	5	343102	5.30	343104	5.30

RLM STANDARD DEEP BOWL REFLECTOR UNIT



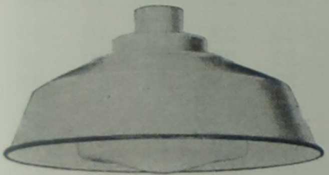
	Reflector Only					Complete Unit		Complete Unit	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
100*	W307100	$1.80	8	5¾	10	343748	$3.10	343754	$3.10
150–200†	W307200	2.20	10	7⅞	10	343750	3.50	343756	3.50
300–500	W307500	3.25	12	8⅝	5	343751	5.20	343757	5.20
750–1500	W307000	4.45	15	12½	5	343752	6.40	343758	6.40

RLM STANDARD SYMMETRICAL ANGLE REFLECTOR UNIT



	Reflector Only					Complete Unit		Complete Unit	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
100*	W304100	$1.65	8	7¼	10	343791	$2.95	343796	$2.95
150–200**	W304150	2.15	10	9⅛	10	1119472	3.45	1119473	3.45
300–500	W304500	3.00	14	12	5	343793	4.95	343798	4.95
750–1500	W304000	5.65	16	15⅝	5	343794	7.60	343799	7.60

GLASSTEEL DIFFUSER UNIT



	Reflector Only					Complete Unit With Opal Globe		Complete Unit With Opal Globe	
Lamp Wattage	Cat. No.	Price Each	Dia. In.	Depth In.	Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
150–200	349801	$4.75	18	7⅞	4	343018	$9.00	343020	$9.00
300–500	349802	5.80	20	8⅞	4	343019	12.50	343021	12.50
750–1000	350496	8.15	24½	11½	2	343061	18.50	343062	18.50

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*Not approved as RLM standard when used with lamps less than 100 watts.

**Not approved as RLM standard when used with 200-watt lamps.

†Not approved as RLM standard when used with 150-watt lamps.

★Hoods for ¾-inch conduit will be furnished when specified, at the same price. Ninety-degree conduit socket hoods will be furnished when specified, at same price.

§Lamp Wattage 25–200—Standard Package 10. ■Lamp wattage 300–1500—Standard Package 5.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

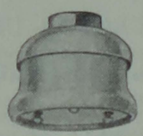
BAYONET HEEL ACCESSORIES

GLASSTEEL DIFFUSER GLOBES

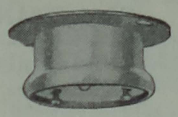
Lamp Size Watts	Globe Dimens.		Standard Pkg.		Opal		Color Correction		Color Matching	
	Diam. Inches	Fitter Inches	Quan.	Wt. Lbs.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
150–200	10	5	4	12	**888333**	**$2.30**	**888868**	**$2.50**	**888869**	**$2.80**
300–500	12	6	4	18	**888334**	**3.60**	**888870**	**4.00**	**888871**	**4.35**
750–1000	16	8	2	16	**888335**	**7.25**	**888872**	**8.25**	**888873**	**9.00**

BAYONET HEEL HOODS

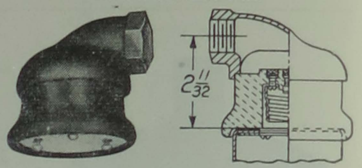
Glasssteel White ½-Inch Conduit Hoods



Glassteel White 3¼ and 4-Inch Outlet Box Hoods



90-Degree ½-Inch Conduit Hoods



Lamp Wattage	Glassteel White ½-Inch Conduit Hoods				Glassteel White 3¼ and 4-Inch Outlet Box Hoods				90-Degree ½-Inch Conduit Hoods			
	Cat. No.	Std. Pkg. Quan.	Std. Pkg. Wt. Lbs.	Price Each	Cat. No.	Std. Pkg. Quan.	Std. Pkg. Wt. Lbs.	Price Each	Cat. No.	Std Pkg. Quan.	Std Pkg. Wt. Lbs.	Price Each
25–200	**349729**	4	6	**$1.95**	**349731**	4	6	**$1.95**	**786742**	10	16	**$1.30**
300–1000	**349730**	4	10	**3.10**	**349732**	4	10	**3.10**	----------	----	----	-------

INSTALLATION DESIGN DATA FOR RLM STANDARD DOME† REFLECTORS

Apr. Mtg. Ht. (Ft.)	Area Per Outlet and Approx. Spacing	Condition Factor	AVERAGE FOOTCANDLES 100 Watt	150 Watt	200 Watt	300 Watt	500 Watt	750 Watt	1000 Watt	1500 Watt
8	56–72 8x8	Favorable	11 –14	18 –23	25 –32	40 –51	....	....	....	....
		Average	9.5–12	15 –20	21 –27	35 –44	....	....	....	....
		Unfavorable	7.5– 9.5	12 –16	17 –22	27 –35	....	....	....	....
8½	72–90 9x9	Favorable	8.7–11	14 –18	20 –25	32 –40	55 –69	....	....	....
		Average	7.5– 9.5	12 –15	17 –21	28 –35	48 –60	....	....	....
		Unfavorable	6.0– 7.5	10 –12	14 –17	22 –27	38 –47	....	....	....
9	90–110 10x10	Favorable	7.0– 8.7	12 –14	16 –20	26 –32	45 –55	66 –80	....	....
		Average	6.2– 7.5	10 –12	14 –17	23 –28	39 –48	56 –69	....	....
		Unfavorable	4.9– 6.0	8.0–10	11 –14	18 –22	31 –38	45 –55	....	....
10	110–132 11x11	Favorable	6.0– 7.0	9.0–12	14 –16	22 –26	38 –45	55 –66	....	....
		Average	5.2– 6.2	8.5–10	12 –14	19 –23	33 –39	47 –56	....	....
		Unfavorable	4.0– 4.9	6.7– 8.0	9.4–11	15 –18	26 –31	37 –45	....	....
10½	132–170 12x12	Favorable	4.6– 6.0	7.7– 9.0	11 –14	17 –22	29 –38	43 –55	61 –78	....
		Average	4.2– 5.6	6.6– 8.5	9.0–12	15 –19	25 –33	37 –47	52 –67	....
		Unfavorable	3.2– 4.0	5.2– 6.7	7.3– 9.4	11 –15	20 –26	29 –37	41 –53	....
12	170–226 14x14	Favorable	3.5– 4.6	5.8– 7.7	8.0–11	13 –17	22 –29	32 –43	46 –61	72 –96
		Average	3.0– 4.2	5.0– 6.6	6.7– 9.0	11 –15	19 –25	28 –37	39 –52	62 –82
		Unfavorable	2.4– 3.2	3.9– 5.2	5.5– 7.3	8.6–11	15 –20	22 –29	31 –41	49 –65
13	226–290 16x16	Favorable	....	4.5– 5.8	6.3– 8.0	10 –13	17 –22	25 –32	36 –46	56 –72
		Average	....	3.9– 5.0	5.3– 6.7	8.5–11	15 –19	21 –28	31 –39	48 –62
		Unfavorable	....	3.1– 3.9	4.3– 5.5	6.7– 8.6	12 –15	17 –22	24 –31	38 –49
14½	290–362 18x18	Favorable	....	3.6– 4.5	5.0– 6.3	8.0–10	14 –17	20 –25	29 –36	46 –56
		Average	....	3.1– 3.9	4.3– 5.3	6.9– 8.5	12 –15	17 –21	25 –31	39 –48
		Unfavorable	....	2.5– 3.1	3.4– 4.3	5.4– 6.7	9.5–12	14 –17	19 –24	31 –38
16	362–450 20x20	Favorable	....	....	4.0– 5.0	6.4– 8.0	11 –14	16 –20	23 –29	36 –46
		Average	....	....	3.4– 4.3	5.5– 6.9	9.5–12	14 –17	20 –25	31 –39
		Unfavorable	....	....	2.8– 3.4	4.4– 5.4	7.5– 9.5	11 –14	16 –19	25 –31

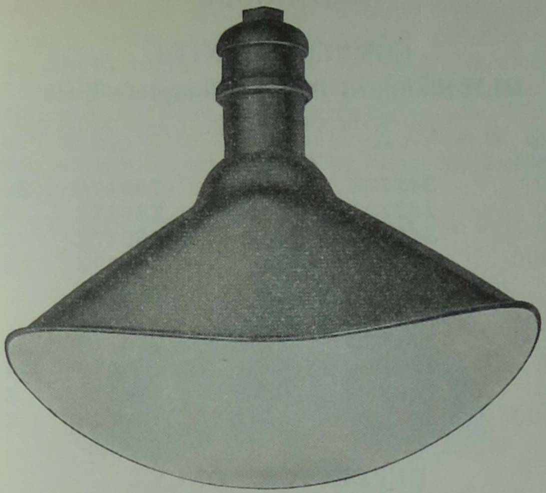
†When designing a layout for Glassteel Diffusers or RLM Deep Bowl Reflectors, use same mounting height and spacing relations as given above and multiply footcandle values by .80 for Glassteel Diffusers, .86 for RLM Deep Bowl Reflectors.

CONDITIONS FACTOR—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width equals **mounting height.**

Footcandle values are calculated to include normal depreciation and initial values will be considerably higher.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

ELLIPTICAL ANGLE REFLECTORS



Front View of Elliptical Angle Reflector with ½-Inch Conduit Hood

Provide a wide lateral distribution of light. Suited for lighting vertical or horizontal surfaces from the side, as in signboard lighting, or where industrial cranes interfere with overhead lighting, or to build up the illumination between units.

Unit is weatherproof through use of water-drip. Three steel screws on bottom of porcelain socket engage in bayonet slots in reflector extension.

Porcelain keyless socket is easy-to-wire type with front-connected binding screws. It may be completely installed and wired without handling reflector.

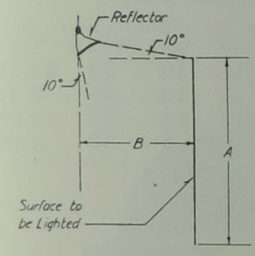
The complete unit consists of a reflector and porcelain socket assembly. Sockets are available for ½-inch or ¾-inch conduit, 90° side mounting ½-inch conduit and 3¼-inch or 4-inch outlet box mounting.

Westinghouse Elliptical Angle Units are approved by the National Board of Fire Underwriters for either interior or exterior application.

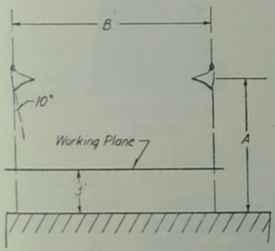
Catalog Number		Lamp Wattage	Width Inches	Length Inches	Depth Inches		Std. Pkg.		Price Each
½-In. Conduit*	Outlet Box				½-In. Conduit	Outlet Box	Quan.	Wt. Lbs.	
				Complete Units					
343560	**343564**	75–100	9⅛	12¾	12½	11⅜	----	46	**$3.50**
343561	**343565**	150	9⅛	12¾	13⅜	12¼	----	46	**4.20**
343562	**343566**	200	11½	16¼	15⅜	14¼	----	51	**4.80**
343563	**343567**	300–500	14¾	20	19⅞	18½	----	48	**8.70**
337850	**337851**	750–1000	14⅞	21⅞	21¼	19⅞	----	53	**9.70**
				Reflectors Only					
349807	**349807**	75–100	9⅛	12¾	9 15/16	9 15/16	10	30	**$2.20**
349808	**349808**	150	9⅛	12¾	10 13/16	10 13/16	10	30	**2.90**
349809	**349809**	200	11½	16¼	12 13/16	12 13/16	10	35	**3.50**
349810	**349810**	300–500	14¾	20⅛	16 3/16	16 3/16	5	35	**6.75**
349462	**349462**	750–1000	17⅞	21⅞	17 9/16	17 9/16	5	40	**7.75**
				Hoods Only					
336387	**336389**	75–200	--------	--------	2 9/16	1 7/16	10	16	**$1.30**
336391	**336393**	300–1000	--------	--------	3 11/16	2 5/16	5	13	**1.95**

*Hoods for ¾-inch conduit will be furnished when specified, at the same price. See complete listing in Bayonet Heel Reflector section.

INSTALLATION DESIGN DATA FOR ELLIPTICAL ANGLE REFLECTORS



Dimensions in Feet			Vertical* Illumination — Footcandles						
A	B	Max. Spacing	100 Watt	150 Watt	200 Watt	300 Watt	500 Watt	750 Watt	1000 Watt
3	2	3	42	69	------	------	------	------	------
4	2½	4	23	39	55	------	------	------	------
6	3¼	5½	13	21	29	46	------	------	------
8	5	7½	7	11	16	24	43	62	------
11	7	10	----	6.2	8.8	14	24	35	50
14	9	13	----	3.6	5.0	8.0	14	20	30
18	11½	16½	----	------	3.2	5.1	9	13	18
22	14	20	----	------	------	3.5	6	8.7	12
28	18	25	----	------	------	------	4	5.5	8



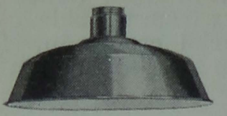
Dimensions in Feet			Horizontal† Illumination — Footcandles						
A	B	Max. Spacing	100 Watt	150 Watt	200 Watt	300 Watt	500 Watt	750 Watt	1000 Watt
13	20	10	----	6.7	9.5	15	26	38	54
14	22	11	----	5.5	7.9	12	22	31	45
15	24	12	----	4.6	6.6	10	18	26	37
17	28	14	----	3.4	4.9	7.7	13	19	27
19	32	16	----	------	3.7	5.8	10	15	21
21	36	18	----	------	------	4.6	8.0	12	17
23	40	20	----	------	------	3.7	6.5	9.5	14
28	50	25	----	------	------	------	4.1	6.1	8.6
33	60	30	----	------	------	------	------	4.2	6.0
38	70	35	----	------	------	------	------	3.1	4.4

*Sign lighting: Dimension "B" may be decreased by 20% but use spacing and footcandles to correspond with this new dimension.

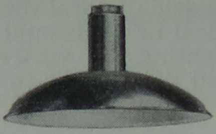
†Footcandle values are calculated at working plane, three feet above floor and include usual depreciation. Initial values will be considerably higher.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

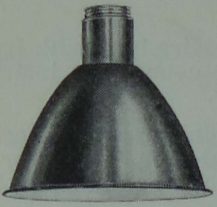
WEMCO SCREW-HEEL REFLECTORS AND SOCKET HOODS



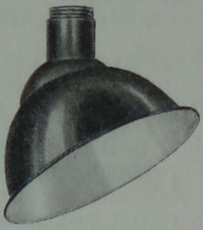
RLM Standard Dome



Shallow Dome



RLM Standard Deep Bowl



RLM Standard Symmetrical Angle

COMPLETE UNITS

Lamp Wattage	½-In. Cond. Cat. No.	½-In. Cond. Price Each	Outlet Box Cat. No.	Outlet Box Price Each	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.
RLM Standard Dome—Complete Unit						
100	**341383**	**$3.50**	**341422**	**$3.70**	....	45
150	**341384**	**3.70**	**341423**	**3.90**	....	50
200	**341385**	**4.30**	**341424**	**4.50**	....	50
300-500	**341386**	**5.50**	**341425**	**5.70**	....	45
Shallow Dome—Complete Unit						
75-100	**341613**	**3.50**	**341618**	**3.70**	....	45
150	**785744**	**3.70**	**785748**	**3.90**	....	50
200	**785745**	**4.30**	**785749**	**4.50**	....	50
300-500	**341615**	**5.50**	**341646**	**5.70**	....	50
RLM Standard Deep Bowl—Complete Unit						
100	**341502**	**3.30**	**341511**	**3.50**	....	35
150-200	**341504**	**3.70**	**341513**	**3.90**	....	45
300-500	**341505**	**5.40**	**341514**	**5.60**	....	35
RLM Standard Symmetrical Angle—Complete Unit						
100	**786768**	**3.15**	**786769**	**3.35**	....	35
150-200	**1119475**	**3.65**	**1119476**	**3.85**	....	45
300-500	**341433**	**5.15**	**341522**	**5.35**	....	35

REFLECTORS ONLY

Cat. No.	Lamp Wattage	Diam. Inches	Depth Inches	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
RLM Standard Dome Reflectors Only						
339206	100¶	12	6⅝	10	25	**$2.20**
340083	150	14	7⅞	10	30	**2.40**
340403	200	16	8¾	10	35	**3.00**
340486	300-500	18	10¼	5	30	**3.70**
Shallow Dome Reflectors Only						
338929	75-100	12	6⅛	10	25	**2.20**
788220	150	14	7⅛	10	30	**2.40**
787578	200	16	8⅛	10	30	**3.00**
338948	300-500	18	9⅜	5	35	**3.70**
RLM Standard Deep Bowl Reflectors Only						
339165	100¶	8	7¼	10	15	**2.00**
339167	150-200†	10	9⅛	10	25	**2.40**
339168	300-500	12	10¾	5	20	**3.60**
RLM Standard Symmetrical Angle Reflectors Only						
339193	100¶	8	8⅝	10	15	**1.85**
1119448	150-200‡	10	10½	10	25	**2.35**
339198	300-500	14	14	5	20	**3.35**

CAST-ALUMINUM HOODS

Lamp Wattage	½-In. Cond.* Cat. No.	½-In. Cond.* Price Each	Outlet Box Cat. No.	Outlet Box Price Each	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.
50-200	**340489**	**$1.30**	**340771**	**$1.50**	10	20
300-1000	**340488**	**1.80**	**340499**	**2.00**	5	15

*Hoods for ¾-inch conduit will be furnished when specified at same price.

¶Not approved as RLM standard when used with 75-watt lamps.

†Not approved as RLM standard when used with lamps less than 150 watts.

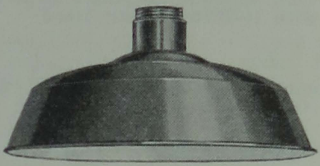
‡Not approved as RLM standard when used with 200-watt lamps.

HEAVY-DUTY SCREW-HEEL REFLECTORS AND HOODS

COMPLETE UNITS

Lamp Wattage	½-In. Cond. Cat. No.	½-In. Cond. Price Each	Outlet Box Cat. No.	Outlet Box Price Each
RLM Standard Dome—Complete Unit				
100†	**343726**	**$4.50**	**789170**	**$4.60**
150	**343727**	**4.70**	**789171**	**4.80**
200	**343728**	**5.30**	**789172**	**5.40**
300-500	**343729**	**6.40**	**789173**	**6.50**
Shallow Dome—Complete Unit				
75-100	**343538**	**4.70**	**789175**	**4.80**
150	**789159**	**4.70**	**789176**	**4.80**
200	**789160**	**5.30**	**789177**	**5.40**
300-500	**343106**	**6.40**	**789178**	**6.50**

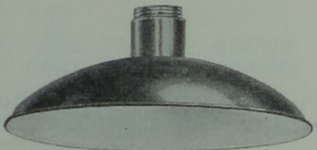
REFLECTORS ONLY



RLM Standard Dome

RLM Standard Dome Reflectors Only

Cat. No.	Lamp Wattage	Diam. Inches	Depth Inches	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
345929	100†	12	4½	10	25	**$2.20**
345930	150	14	5⅝	10	30	**2.40**
345931	200	16	6⅝	10	35	**3.00**
345932	300-500	18	7	5	30	**3.70**



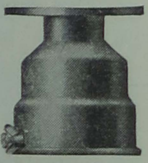
Shallow Dome

Shallow Dome Reflectors Only

Cat. No.	Lamp Wattage	Diam. Inches	Depth Inches	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
349822	100†	12	3¾	10	20	**$2.40**
788217	150	14	4⅞	10	25	**2.40**
787580	200	16	5¾	10	30	**3.00**
349824	300-500	18	5⅛	5	30	**3.70**

CAST-IRON HOODS

½-Inch Conduit* Hood



Outlet Box Hood

Lamp Wattage	½-In. Cond.* Cat. No.	½-In. Cond.* Price Each	Outlet Box Cat. No.	Outlet Box Price Each	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.
75-200	**349967**	**$2.30**	**789167**	**$2.40**	10	20
300-1000	**349968**	**2.70**	**789168**	**2.80**	5	15

*Hoods for ¾-inch conduit will be furnished, when specified, at the same price.

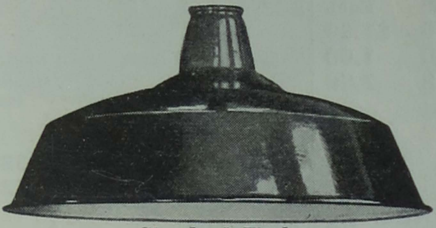
†Not approved as RLM standard when used with less than 100-watt lamps.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

WESCO REFLECTORS

WESCO dome and shallow bowl reflectors are furnished with standard heels for attachment to brass shell, metal clad, or porcelain sockets by means of snap-in clamp-holders. WESCO one-piece dome and shallow bowl reflectors are self-contained units with the sockets enclosed in the reflector extension and threaded for attaching direct to ½-inch conduit.

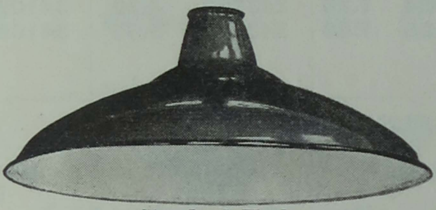
STANDARD DOME REFLECTOR ONLY



Standard Heel
Standard Dome Reflector

Cat. No.	Lamp Wattage	Diam. In.		Std. Quan.	Pkg. Wt. Lbs.	Price Each
		Refl.	Heel			
786635	75–100	12	2¼	10	25	**$1.50**
786636	150	14	2¼	10	30	**1.75**
786637	200	16	2¼	10	35	**2.10**

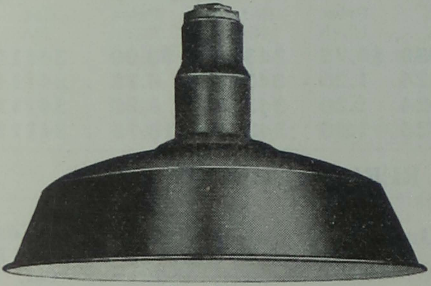
SHALLOW BOWL REFLECTOR ONLY



Standard Heel
Shallow Bowl Reflector

Cat. No.	Lamp Wattage	Diam. In.		Std. Quan.	Pkg. Wt. Lbs.	Price Each
		Refl.	Heel			
350460	25–40	10	2¼	10	15	**$0.80**
350461	60–100	12	2¼	10	20	**.95**
350462	150–200	14	2¼	10	25	**1.20**
785832	300	16	3¼	10	30	**1.50**

ONE-PIECE STANDARD DOME COMPLETE UNITS

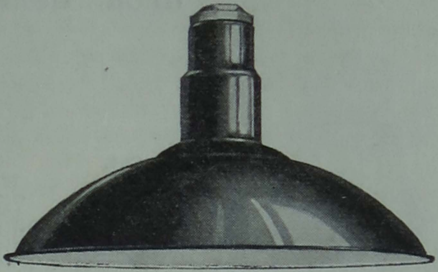


One-Piece
Standard Dome Reflector

Cat. No.	Lamp Wattage	Diam. In.		Std. Quan.	Pkg. Wt. Lbs.	Price Each
		Refl.	Heel			
786621	75–100	12	......	10	25	**$2.65**
786622	150	14	......	10	30	**2.80**
786623	200	16	......	10	35	**3.30**

WESCO REFLECTORS

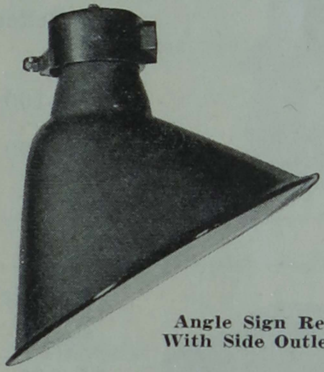
ONE-PIECE SHALLOW BOWL COMPLETE UNITS



One-Piece
Shallow Bowl Reflector

Cat. No.	Lamp Wattage	Diam. In.		Std. Quan.	Pkg. Wt. Lbs.	Price Each
		Refl.	Heel			
785833	75–100	12	......	10	25	**$2.65**
785834	150	14	......	10	30	**2.80**
785835	200	16	......	10	35	**3.30**

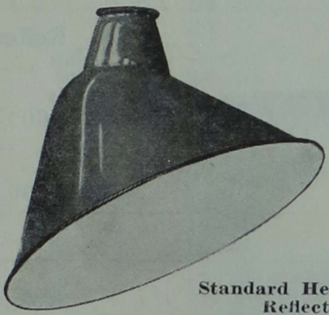
ANGLE SIGN REFLECTORS



Angle Sign Reflector
With Side Outlet Hood

Complete Unit

Cat. No.	Lamp Wattage	Reflector Diam. In.	Std. Quan.	Pkg. Wt. Lbs.	Price Each
785836	50–60	8	10	25	**$2.20**
788516	75–100	8	10	25	**2.20**
788514	150	10	10	35	**2.50**



Standard Heel Angle Sign
Reflector Only

Reflector Only

Cat. No.	Lamp Wattage	Reflector Diam. In.	Std. Quan.	Pkg. Wt. Lbs.	Price Each
785837	50–60	8	10	15	**$1.10**
788311	75–100	8	10	15	**1.10**
788513	150	10	10	25	**1.40**
		Hood Only			
788296	50–150	....	10	10	**1.10**

SNAP-IN HOLDERS FOR BRASS, PORCELAIN AND METAL CLAD SOCKETS

For Brass Shell Socket

Cat. No.	Std. Pkg. Quan.	Std. Pkg. Wt. Lbs.	Price Each
788529	10	2	**$0.20**

For Porcelain Socket

Cat. No.	Std. Pkg. Quan.	Std. Pkg. Wt. Lbs.	Price Each
788530	10	2	**$0.20**

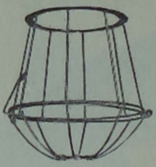
For 1-Piece Metal Clad Socket

Cat. No.	Std. Pkg. Quan.	Std. Pkg. Wt. Lbs.	Price Each
788528	10	2	**$0.20**

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

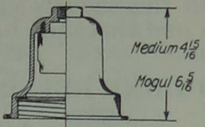
VAPOR-PROOF REFLECTORS, GLOBES AND HOODS

GLOBE GUARDS



Cat. No.	Lamp Size Watts	Dia. In.	Depth In.	Std. Pkg.	Pkg. Wt.	Price Each
336420	75–150	5½	5	10	10	**$1.50**
349706	200	6½	7	10	10	**1.60**
342282	300–500	8½	8	5	8	**2.50**

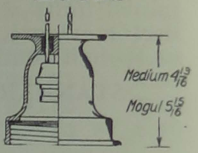
½-INCH★ CONDUIT HOODS



Section of ½-Inch Conduit Hood

Cat. No.	Price Each
349960†	**$3.00**
349963‡	**4.00**

OUTLET BOX HOODS



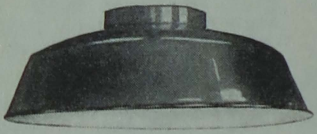
Section of Outlet Box Hood

Cat. No.	Price Each
339163†	**$3.70**
339162‡	**4.70**

UNIT WITHOUT REFLECTOR

Reflectors Only*			Globes Only*			Complete Unit		Complete Unit	
Lamp Size Watts	Cat. No.	Price Each	Size Inches	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
150–100	....	....	5x5§	**349959**	**$0.75**	**343571**	**$3.75**	**341084**	**$4.45**
200	....	....	5x6§	**336424**	**1.20**	**343572**	**4.20**	**341091**	**4.90**
300–500	....	....	8¶	**336425**	**1.60**	**343573**	**5.60**	**341092**	**6.30**

DOME REFLECTOR UNIT



Reflector Only*			Globe Only*			Complete Unit		Complete Unit	
Lamp Size Watts	Cat. No.	Price Each	Size Inches	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
75–100	**342538**	**$2.25**	5x5§	**349959**	**$0.75**	**343574**	**$6.00**	**341093**	**$6.70**
150	**342539**	**3.00**	5x6§	**336424**	**1.20**	**343575**	**6.75**	**341094**	**7.45**
200	**342540**	**4.05**	5x6§	**336424**	**1.20**	**343576**	**8.25**	**341110**	**8.95**
300–500	**342541**	**5.15**	8¶	**336425**	**1.60**	**343577**	**10.75**	**341111**	**11.45**

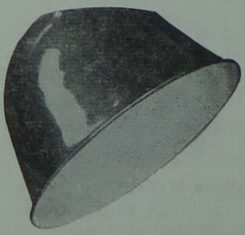
CONCENTRIC REFLECTOR UNIT

Reflector Only*			Globe Only*			Complete Unit		Complete Unit	
Lamp Size Watts	Cat. No.	Price Each	Size Inches	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
75–100	**342546**	**$2.25**	5x5§	**349959**	**$0.75**	**343581**	**$6.00**	**341115**	**$6.70**
150	**342547**	**3.00**	5x6§	**336424**	**1.20**	**343582**	**6.75**	**341116**	**7.45**
200	**342548**	**4.05**	5x6§	**336424**	**1.20**	**343583**	**8.25**	**341117**	**8.95**
300–500	**342549**	**5.15**	8¶	**336425**	**1.60**	**343111**	**10.75**	**341119**	**11.45**

DEEP BOWL REFLECTOR UNIT

Reflector Only*			Globe Only*			Complete Unit		Complete Unit	
Lamp Size Watts	Cat. No.	Price Each	Size Inches	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
75–150	**342543**	**$2.65**	5x5§	**349959**	**$0.75**	**343578**	**$6.40**	**341112**	**$7.10**
200	**342544**	**2.80**	5x6§	**336424**	**1.20**	**343579**	**7.00**	**341113**	**7.70**
300–500	**342545**	**3.45**	8¶	**336425**	**1.60**	**343580**	**9.05**	**341114**	**9.75**

ANGLE REFLECTOR UNIT



Reflector Only*			Globe Only*			Complete Unit		Complete Unit	
Lamp Size Watts	Cat. No.	Price Each	Size Inches	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
100–200	**342550**	**$3.05**	5x6§	**336424**	**$1.20**	**343424**	**$7.25**	**341120**	**$7.95**
300–500	**342553**	**4.40**	8¶	**336425**	**1.60**	**337853**	**10.00**	**341121**	**10.70**

§Pear. ¶Ball.

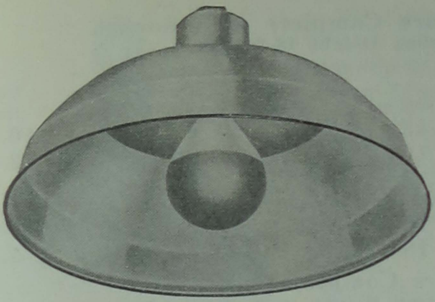
*Standard package: 75–200-watt lamps inclusive, 10; 300–500-watt lamps, 5.

★Hoods for ¾-inch conduit will be furnished when specified, at same price. †For 75–200-watt lamps. Standard package 10. Holophane Globe No. 2328 may be used with this hood.

‡For 300–500-watt lamps; Standard package 5.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

SILVERED BOWL DIFFUSER



Silvered Bowl Diffuser Showing Reflector Arrangement and Lamp

Westinghouse RLM Standard Silvered Bowl Diffusers are for use with 300 or 500 watt silvered bowl lamps for general lighting of low bay areas in machine shops, assembly departments, metal working shops, printing shops, textile mills and all similar locations.

The complete unit consists of a dome-shaped porcelain-enameled reflector, an inner aluminum reflector and a socket assembly. It is supplied either with Locklite hoods for both conduit and 3¼ or 4-inch outlet box mounting or as a one-piece unit for conduit mounting.

The dome-shaped reflector is drawn from No. 22 gauge enameling grade sheet steel. The effective enamel reflecting surface extends from the outer edge to the inner aluminum reflector. The reflector is finished with one ground coat of porcelain enamel all over and with two coats of white enamel inside and outside.

An inner aluminum reflector, 12⅛ inches in diameter, is formed from No. 18 gauge sheet aluminum and is treated by the Alzak process for greater permanence and ease of cleaning. It is attached to the main reflector body by three rivets.

The complete unit is approved by the National Board of Fire Underwriters and by the RLM Standards Institute.

Catalog Number		Lamp Wattage	Diam. Inches	Depth Inches	Std. Pkg.		Price Each
½-In. Conduit*	Outlet Box				Quan.	Wt. Lbs.	
			Locklite Complete Unit				
892586	**892587**	300–500	20¾	12½	----	----	**$11.90**
			Locklite Reflector Only				
891693	**891693**	300–500	20¾	10⅜	4	35	**11.10**
			Locklite Hood Only				
892339	**892341**	-------------	3¼	3¼	10	20	**.80**

*Units for ¾-inch conduit will be furnished when specified, at same price. See complete listing in Locklite Reflector section.

INSTALLATION DESIGN DATA FOR SILVERED BOWL DIFFUSER LUMINAIRES

Mounting Height (feet)	Approximate Spacing (feet)	Area Per Outlet (Sq. Ft.)	Conditions Factor	Footcandles	
				300* Watts	500 Watts
9′	8x 8	56– 72	Favorable	38–49	----------
			Average	35–45	----------
			Unfavorable	30–38	----------
10′	9x 9	72– 90	Favorable	30–38	53–66
			Average	28–35	49–61
			Unfavorable	24–30	41–51
11′	10x10	90–110	Favorable	25–30	44–53
			Average	23–28	40–49
			Unfavorable	19–24	34–41
12′	11x11	110–132	Favorable	21–25	36–44
			Average	19–23	33–40
			Unfavorable	16–19	28–34
12′ 6″	12x12	132–156	Favorable	18–21	31–36
			Average	16–19	28–33
			Unfavorable	14–16	24–28
13′ 6″	13x13	156–183	Favorable	15–18	26–31
			Average	14–16	24–28
			Unfavorable	12–14	20–24
14′ 6″	14x14	183–202	Favorable	13–15	24–26
			Average	12–14	22–24
			Unfavorable	10–12	18–20
15′ 3″	15x15	202–240	Favorable	11–13	20–24
			Average	10–12	18–22
			Unfavorable	9–10	16–18
16′	16x16	240–268	Favorable	10–11	18–20
			Average	9–10	16–18
			Unfavorable	8– 9	14–16

*Use only 300 or 500-watt Silvered Bowl Mazda Lamps.

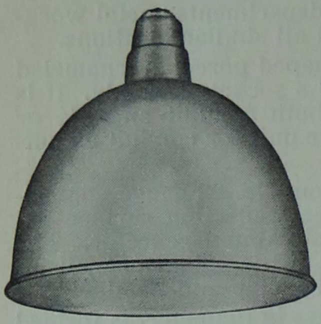
CONDITIONS FACTOR—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width equals **mounting height.**

Footcandle values are calculated to include normal depreciation and initial values will be considerably higher.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

ALUMINUM HIGH BAY REFLECTORS

Spread and Concentrating Types



One-Piece Aluminum Reflector

Westinghouse Aluminum High Bay Reflectors are for use with incandescent lamps for general lighting of high bay areas in foundries, machine shops, power plants, receiving and shipping departments, sheet metal works and all similar locations.

Catalog Number ½-Inch* Conduit	Catalog Number Outlet Box	Lamp Wattage	Diam. In.	Depth Inches Conduit	Depth Inches Outlet Box	Standard Package Quan.	Standard Package Wt. Lbs.	Price Each
One-Piece Aluminum Reflectors Complete with Socket								
Spread Distribution—Mounting Height 18-30 feet								
889902	....	300–500	14	13	....	4	20	**$10.00**
889903	....	750–1000	16	16¼	....	4	25	**12.00**
889904	....	750–1500	18	18½	....	4	30	**14.50**
Concentrating Distribution—Mounting Height 31-50 feet								
889905	....	300–500	16	15¾	....	4	25	**12.00**
889906	....	750–1500	18	18	....	4	30	**14.50**
Locklite Aluminum Reflectors Complete with Socket								
Spread Distribution—Mounting Height 18-30 feet								
892675	**892680**	300–500	14	13½	13⅛	..	....	**10.40**
892676	**892681**	750–1000	16	16¾	16⅜	..	....	**12.40**
892677	**892682**	750–1500	18	19	18⅝	..	....	**14.90**
Concentrating Distribution—Mounting Height 31-50 feet								
892678	**892683**	300–500	16	16¼	15⅞	..	....	**12.40**
892679	**892684**	750–1500	18	18⅜	18	..	....	**14.90**
Locklite Reflectors Only								
Spread Distribution—Mounting Height 18-30 feet								
892380	**892380**	300–500	14	11½	11½	4	15	**9.60**
892401	**892401**	750–1000	16	14¾	14¾	4	17	**11.60**
892402	**892402**	750–1500	18	17	17	4	23	**14.10**
Concentrating Distribution—Mounting Height 31-50 feet								
892517	**892517**	300–500	16	14¼	14¼	4	17	**11.60**
892518	**892518**	750–1500	18	16⅜	16⅜	4	23	**14.10**
Locklite Hoods Only								
892339	**892341**	300–1500	3¼	3¼	3¼	10	20	**.80**

*Hoods for ¾-inch conduit will be furnished at same price, when specified. For units supplied with shock absorbing sockets add **$0.10** to price of unit.

INSTALLATION DESIGN DATA FOR ALUMINUM HIGH BAY REFLECTORS

Area Per Outlet and Approx. Spacing	Conditions Factor	AVERAGE FOOTCANDLES									
		Spread Type—10 to 30 Feet Mounting					Concentrating Type—30 to 50 Feet Mounting				
		300 Watt	500 Watt	750 Watt	1000 Watt	1500 Watt	300 Watt	500 Watt	750 Watt	1000 Watt	1500 Watt
170–226 14x14	Favorable	13–18	23–31	34–45			11–15	20–27	29–38		
	Average	11–15	19–25	28–37			9.7–13	17–22	24–32		
	Unfavorable	7.9–11	14–18	20–27			6.9–9.2	12–16	17–25		
226–290 16x16	Favorable	10–13	18–23	26–34	37–48		9.0–11	16–20	23–29	32–41	
	Average	8.5–11	15–19	22–28	31–39		7.5–9.7	13–17	19–24	27–35	
	Unfavorable	6.2–7.9	11–14	16–20	22–28		5.4–6.9	9.4–12	14–17	19–25	
290–360 18x18	Favorable	8.3–10	15–18	21–26	30–37		7.2–9.0	13–16	18–23	24–32	
	Average	6.9–8.5	12–15	17–22	25–31		6.1–7.5	11–13	15–19	22–27	
	Unfavorable	5.0–6.2	8.7–11	12–16	18–22		4.3–5.4	7.5–9.4	11–14	15–19	
360–490 20x20	Favorable	6.1–8.3	11–15	15–21	22–30	35–47	5.5–7.2	9.2–13	13–18	19–24	30–40
	Average	5.1–6.9	8.8–12	13–17	18–25	29–39	4.5–6.1	7.8–11	11–15	16–22	25–34
	Unfavorable	3.6–5.0	6.4–8.7	9.2–12	13–18	21–28	3.2–4.3	5.5–7.5	8.0–11	11–15	18–24
490–680 24x24	Favorable	4.4–6.1	7.7–11	11–15	16–22	25–35	3.8–5.5	6.6–9.2	9.6–13	14–19	22–30
	Average	3.7–5.1	6.4–8.8	9.2–13	13–18	21–29	3.2–4.5	5.6–7.8	8.1–11	12–16	18–25
	Unfavorable	2.6–3.6	4.6–6.4	6.6–9.2	9.5–13	15–21	2.3–3.2	4.0–5.5	5.8–8.0	8.2–11	13–18
680–900 28x28	Favorable		5.8–7.7	8.4–11	12–16	19–25		5.0–6.6	7.3–9.6	10–14	16–22
	Average		4.8–6.4	7.0–9.2	9.9–13	16–21		4.2–5.6	6.1–8.1	8.7–12	14–18
	Unfavorable		3.5–4.6	5.0–6.6	7.1–9.5	11–15		3.0–4.0	4.4–5.8	6.2–8.2	10–13
900–1160 32x32	Favorable		4.6–5.8	6.5–8.4	9.3–12	15–19		4.0–5.0	5.7–7.3	8.0–10	13–16
	Average		3.7–4.8	5.4–7.0	7.7–9.9	12–16		3.3–4.2	4.8–6.1	6.8–8.7	11–14
	Unfavorable		2.7–3.5	3.9–5.0	5.5–7.1	8.7–11		2.3–3.0	3.4–4.4	4.8–6.2	7.5–10
1160–1450 36x36	Favorable			5.2–6.5	7.4–9.3	12–15			4.5–5.7	6.5–8.0	10–13
	Average			4.3–5.4	6.1–7.7	9.7–12			3.8–4.8	5.4–6.8	8.5–11
	Unfavorable			3.1–3.9	4.4–5.5	7.0–8.7			2.7–3.4	3.9–4.8	6.0–7.5
1450–1770 40x40	Favorable			4.3–5.2	6.1–7.4	9.6–12				5.3–6.5	8.3–10
	Average			3.5–4.3	5.0–6.1	7.9–9.7				4.5–5.4	7.0–8.5
	Unfavorable			2.6–3.1	3.6–4.4	5.7–7.0				3.2–3.9	5.0–6.0

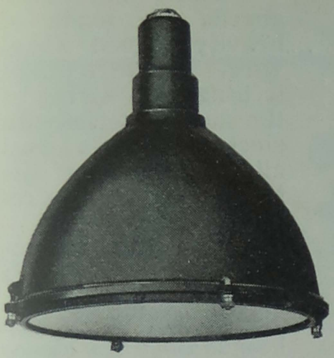
CONDITIONS FACTOR—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width equals **mounting height.**

Footcandle values are calculated to include normal depreciation and initial values will be considerably **higher.**

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

MILLITE LUMINARIES

For Incandescent and Mercury Vapor Lamps



Westinghouse Millite is a completely enclosed dust-tight and vapor-proof lighting unit for heavy duty service in industrial high bay areas. Especially adapted to extreme service locations such as steel mills, foundries, chemical plants or wherever acid fumes, dust, smoke or excessive moisture are present. Also for outdoor installations.

A choice of Millites for either incandescent or mercury lamps, and for low, medium or high mounting simplifies the design of the lighting installation. Equally good results are obtained by using either all-incandescent units, all-mercury units, or alternate incandescent and mercury units for color correction.

The complete unit consists of four parts: a steel housing, an inner aluminum reflector, a hinged glass cover, and a socket assembly. The unit is arranged for conduit mounting.

A heavy treated asbestos gasket between capnut and housing provides a vapor-proof seal.

The cover consists of a cast ring and glass with gaskets. The cast aluminum ring is permanently hinged to the housing. It is equipped with three forged steel hook-bolts and three steel thumb nuts, cadmium plated, which engage the bead of the housing. The cover is opened and closed without tools. The ring finish is identical to that of the housing.

The glass is both heat and impact resisting. It is ¼-inch thick, clear, and highly polished, with more than 90% transmission of light. It withstands sharp temperature changes and extreme impact. If struck an extremely heavy blow, the glass shatters into small dull fragments rather than splitting into large sharp pieces. Thus, it is non-hazardous.

Approved as dust-tight and vapor-proof by the National Board of Fire Underwriters.

Complete Units for Incandescent Lamps

Cat. No.* ½-In.	Lamp Wattage	Dimens. Diam. Inches	Dimens. Hgt. Inches	Mtg. Ht. Ft.	Wt. Lbs.	Price Each
		Spread Distribution				
1119345	300-500	15¾	14⅜	15-25	21	**$24.00**
1119318	750-1000	19¾	20⅜	18-30	29	**32.50**
		Medium Distribution				
1119323	750-1000	19¾	19⅛	31-45	27	**32.50**
		Concentrating Distribution				
1119341	300-500	15¾	16¼	26-40	22	**26.00**
1119324	750-1000	19¾	19⅛	46-up	27	**34.50**

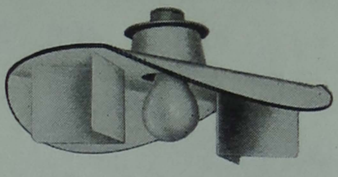
Complete Units for Mercury Lamps

Cat. No.* ½-In.	Lamp Wattage	Dimens. Diam. Inches	Dimens. Hgt. Inches	Mtg. Ht. Ft.	Wt. Lbs.	Price Each
		Spread Distribution				
1119314	400	19¾	18	18-30	28	**32.50**
		Medium Distribution				
1119307	400	19¾	20⅜	31-45	44	**32.50**
		Concentrating Distribution				
1119306	400	19¾	20⅜	46-up	44	**32.50**

Standard Package, 1.

*Units for ¾-inch conduit will be furnished when specified at same price.

BIN AND STACK LUMINAIRES



With Outlet Box Hood

These Luminaires provide proper illumination for library book stacks and stockroom bins. The reflector concentrates light on vertical and horizontal surfaces of the bins or stacks with enough light on the aisle floor for easy seeing.

Two triangular vanes located at each end of the reflector act as eye-shields to eliminate glare up and down the aisle. Bin and stack luminaires are available for ½-inch and ¾-inch conduit mounting and 4-inch outlet box mounting.

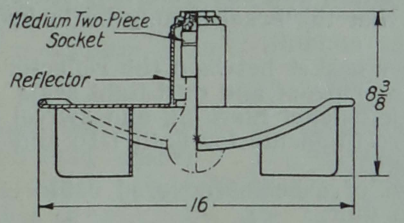
Reflectors are porcelain enameled as follows: one ground coat all over, two coats of white enamel inside and out with black bead. The sides of reflector are slightly dipped to provide proper light distribution.

Units are approved by the National Board of Fire Underwriters.

Cat. No.	Lamp Wattage	Mounting	Std. Pkg.	Pkg. Wt.	Price Each
888 284	75-100	4-inch outlet box	10	35	**$3.75**
889 024	75-100	½-inch conduit*‡	10	35	**3.75**
891 331	75-100	½-inch conduit†‡	10	35	**4.55**

*Keyless socket. †Pull chain socket. Hoods for ¾-inch conduit mounting will be furnished when specified, at the same price.

‡For 60-watt lamps, use socket extension.



Construction Outline of Bin and Stack Luminaire for Conduit Mounting
Note: If outlet box mounting is used overall height will be 5⅞ inches.

Installation Design Data

Mounting Height A Feet	Mounting Height B Inches	Spacing C Feet	Spacing D Feet	Footcandles 75 Watt	Footcandles 100 Watt
7	4	6	2½	8.0	11.0
8	4½	7	3	6.0	8.5
9	5	8	3½	4.5	6.5
10	6	9	4	----	5.5

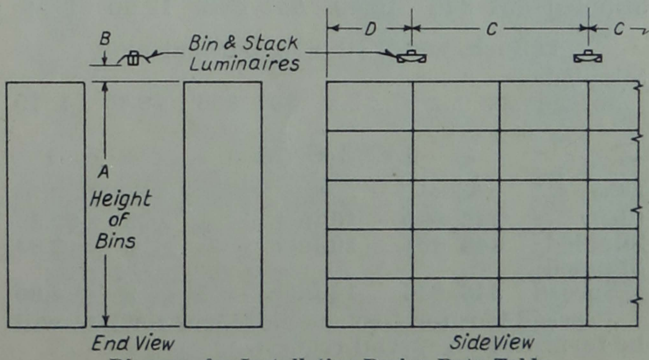
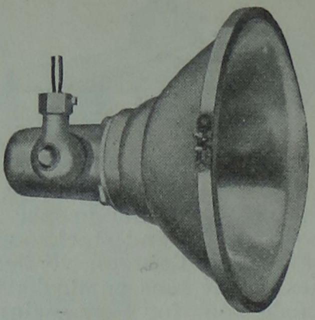


Diagram for Installation Design Data Table

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

INDUSTRIAL CONCENTRATORS



Type I-10 Industrial Concentrator with Clear Lens

Westinghouse I-10 and I-14 Industrial Concentrators are light-weight, aluminum units, for lighting horizontal and vertical surfaces from an oblique angle.

This type of supplemental lighting is required for fine assembly work, inspection or for use in paint shops as a vapor-proof and dust-tight unit.

Units are available for ½-inch conduit mounting only.

The complete unit consists of aluminum reflector, porcelain socket assembly, cast-aluminum socket housing and aluminum swivel mounting bracket for ½-inch conduit mounting.

One-piece reflector spun from Alclad aluminum with diffuse or specular reflecting surface and treated by the Alzak process produces a finish high in efficiency and easily cleaned.

Cast aluminum swivel mounting bracket attached to the side of the socket housing is tapped for ½-inch conduit, and has a slotted, square head set screw so that the bracket may be locked in position on the conduit.

A rubber gasket between the reflector and lens gives a vapor-proof and dust-tight seal.

Reflector, socket housing, and swivel mounting bracket are the same for both I-10 and I-14 Concentrators.

Ten feet of asbestos covered cable is supplied with each unit.

With the I-10 unit, use 200-watt PS-30 bulb clear, or inside frosted, depending upon the beam spread desired. With the I-14 unit, use 300-watt PS-35 or 500-watt PS-40 bulb clear lamps.

Lamps are not furnished with either unit.

COMPLETE UNIT

10-Inch, 200-Watt I-10 Concentrator

	Wide Beam		Narrow Beam		Std.	Pkg.
Lens*	Cat. No.	Price	Cat. No.	Price	Pkg.	Wt.
Clear	**891 444**	**$10.40**	**891 442**	**$12.00**	1	9
Stippled	**891 445**	**10.40**	**891 443**	**12.00**	1	9

14-Inch, 500-Watt I-14 Concentrator

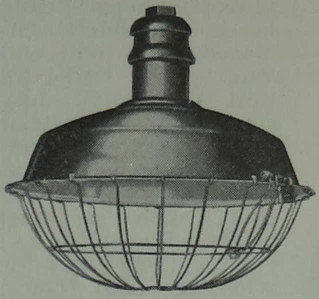
Stippled Spread	.....	.....	....	**891 635** **16.00**	1	19

LENS ONLY

Lens*	Cat. No.	Size	Std.Pkg.	Pkg.Wt.	Price
Clear	**348 500**	10-inch	1	5	**$2.80**
Stippled	**348 501**	10-inch	1	5	**2.80**
Stippled Spread	**346 524**	14-inch	1	9	**4.80**

*Spread lens for I-10 and clear lens for I-14 will be furnished on special request.

WIRE GUARDS FOR RLM DOME REFLECTORS



These reflector guards are made of heavily-tinned steel wire. The wire guard is hinged to a ring of the same material with electrically welded clips to engage the beaded edge of the reflector.

A spring catch opposite the hinge holds the guard in position or allows it to be hinged open for cleaning or for renewing lamps without disturbing the supporting band around the edge of the reflector.

A small padlock may be used wherever necessary to lock guard to reflector.

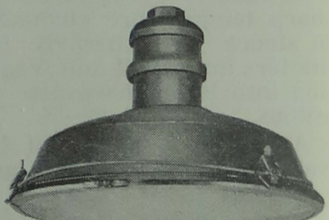
Reflector Guard Only

Cat. No.	Dimens., Inches Diameter	Depth	Standard Package Quantity	Wt.Lbs.	Price Each
351487*	8	2⅝	10	10	**$0.85**
344722	10	2	10	12	**1.20**
351494	12	2⅞	10	13	**1.50**
351495	14	4⅛	10	15	**1.80**
344723	15	4½	10	18	**2.00**
351497	16	5½	10	20	**2.10**
351498†	18	5¾	10	25	**2.50**
351499‡	20–21	7⅛	10	59	**3.00**
338109§	24	7¼	10	65	**4.75**

*The 8-inch wire guard fits Mill Type reflector No. 353017. †Fits the glassteel diffuser reflectors Nos. 349801 and 349132. ‡Fits the glassteel diffuser reflectors Nos. 349802 and 349133. §Fits glassteel diffuser reflectors Nos. 350496 and 350600.

DUST-TIGHT GLASS COVERS

Westinghouse dust-tight covers are easily and quickly installed. The complete cover is held to the reflector by a wire ring. The cover is hinged to this ring and the felt gasket is held tightly against the edge of the reflector by clips. All metal parts of cover are nickel plated finish.



For RLM Dome Reflectors

Complete Covers with Glass					Glass Only	
Cat. No.	Lamp Wattage	Diam. In.	Std. Pkg.	Price Each	Cat. No.	Price Each
340837	50-100	12	5	**$2.70**	**890066**	**$1.00**
340851	150	14	5	**3.10**	**890067**	**1.20**
340932	200	16	5	**3.60**	**890068**	**1.50**
340933	300-500	18	5	**4.10**	**890069**	**1.80**
340934	750-1000	20	5	**5.70**	**890070**	**3.00**

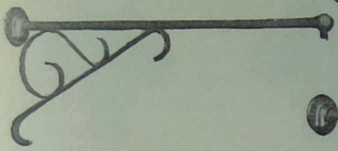
For Aluminum High Bay Reflectors

Complete Covers with Glass				Glass Only	
Cat. No.	For Reflectors Style No.	Diam. In.	Price Each	Cat. No.	Price Each
341064	889902, 892380	14	**$3.10**	**341068**	**$1.20**
341065	889903, 889905 892401, 892517	16	**3.60**	**341069**	**1.50**
341067	889904, 889906 892402, 892518	18	**4.10**	**341070**	**1.80**

BENJAMIN FIXTURE PARTS

IRON BRACKET AND MAST ARM

Iron Parts Cadmium Plated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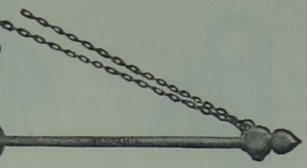

No. 6180

Iron Bracket with Brace and No. 5031 Wall Fitting

Cat. No.	Pipe Length and Size	Fitting	Size Fitting Inches	Std. Pkg.	List Price
5040	40″ of ¾″ Pipe	6186	½	10	$3.80
5041	40″ of ¾″ Pipe	6188	¾	10	3.80
6186	Ball Fitting Only	....	¾x½	10	.55
6188	Ball Fitting Only	....	¾x¾	10	.55

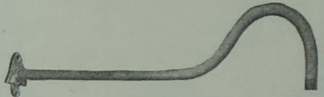
Iron Mast Arm with Chains and No. 5031 Wall Fitting

6180	36″ of ¾″ Pipe	....	½	10	3.50
6181	36″ of ¾″ Pipe	....	¾	10	3.50

Schedule 2 Discounts Apply.

IRON GOOSENECKS

With Wall Fitting

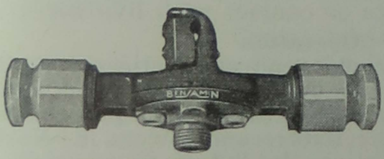

No. 5066

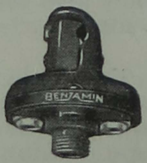
Gooseneck No. 5066 is regularly furnished with wall fitting No. N-5026, but may be furnished, if specified, with pole fitting No. 5025 at **$0.95** list. No. 5067 includes wall fitting No. 5027.

Cat. No.	Std. Lgth. In.	Style	Size Pipe In.	Std. Pkg.	List Price
5066	30	90° Bend	½	10	$1.10
5067	40	90° Bend	¾	10	1.65
		Less Fitting			
5036	30	90° Bend	½	10	.60
5037	40	90° Bend	¾	10	1.00

Schedule 2 Discounts Apply.

WEATHERPROOF CABLE SUSPENSION FITTINGS


No. 6037M


No. 6039M

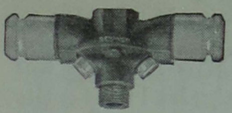
Hook and clamp design for easy attachment of reflectors to overhead cables. Weatherproof construction with iron parts cadmium plated. Clamp block takes $\frac{3}{16}$ to ½-inch diameter cable.

Size Tapped	With Cross Arm		Without Cross Arm		Std. Pkg.
	Cat. No.	List Price	Cat. No.	List Price	
½-In. Fem.	6036	$1.50	6038	$0.95	10
½-In. Male	6037M	1.50	6039M	.95	10

Schedule 2 Discounts Apply.

BENJAMIN FIXTURE PARTS

CROSS ARM

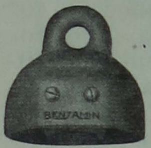

No. 6203

With Insulated Wire Openings

Cat. No.	Bot. Thd. In.	Top Tap'd In.	Std. Pkg. Wt.	Std. Pkg.	List Price
6203	¾	¾	26	10	$1.50
6205	½	¾	26	10	1.50

Schedule 2 Discounts Apply.

SUSPENSION FITTINGS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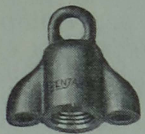
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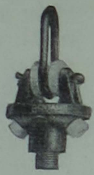
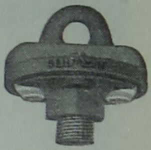

No. 6049V


No. 6031M

With Non-Insulated Wire Openings

Cat. No.	Size Tapped, In.	Std. Pkg.	Wt. Lb. Std. Pkg.	List Price
6029	½ Female	10	9½	$0.60
6028	½ Female	10	5½	.30
6028-M	½ Male	10	6½	.35
	With Insulated Wire Openings			
6031	½ Female	10	10½	.45
6031-M	½ Male	10	11	.55
6049	½ Female	10	13	1.15
6049-M	½ Male	10	14½	1.20
6049-V	¾ Male	10	15	1.20

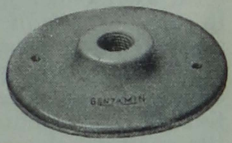
Schedule 2 Discounts Apply.

CAST IRON COVER AND GASKET

For Suspending Pendent Vapor-Tight Units

Standard package is 10.

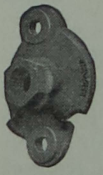
Cat. No.	Description	List Price
5020	Flange, tapped ½-inch and gasket for 4-inch box......	$0.60
5021	Gasket only	.10


No. 5020

Schedule 2 Discounts Apply.

POLE AND WALL FITTINGS

Iron Parts Cadmium Plated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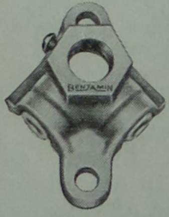
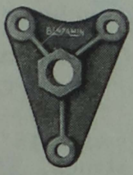

No. N-5026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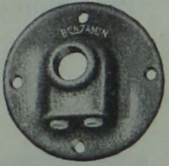

No. 5031

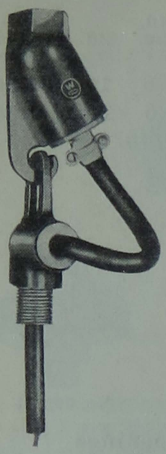
Cat. No.	Description	Size Tapped In.	Std. Pkg.	Shipping Wt. Lbs. Std. Pkg.	List Price
**5025	With wire openings	½	10	7	$0.35
N-5026	Insulated openings ..	½	10	5½	.50
N-5026-V	Insulated openings	¾	10	6½	.50
5027	Less wire openings	¾	10	15	.65
5028	Less wire openings	½	10	15	.65
5031	Insulated openings ..	¾	10	18	.95
5032	Insulated openings ..	½	10	19½	.95

**With curved back, for pole use only.

Schedule 2 Discounts Apply.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

SAFE CHANGE HANGERS



Westinghouse Safe Change Hangers provide a safe, flexible and separable means of suspending industrial lighting units. Safety is obtained since the loop assembly cannot be removed from the hook until the circuit is broken by removal of attachment lug. Used in industrial plants to facilitate maintenance and provide an inexpensive simple quick method of removing reflectors for cleaning or relamping, and for interchangeability of entirely different types of lighting units. Hanger assures proper position of lamp and reflector regardless of position of supporting stem. Furnished in 2-wire construction for standard 2-wire systems, and in 4-wire construction for 3-phase, 4-wire or single phase 3-wire systems for mercury incandescent combination units when separate control of the mercury and incandescent circuits is desired.

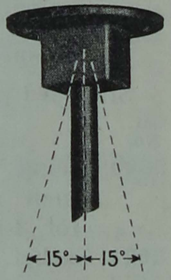
For ½-Inch Conduit*

Cat. No.	Description	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
346571	2-Wire	10	15	**$2.75**
889375	4-Wire	4	12	**7.75**

*Can be supplied for ¾-inch conduit mounting on special order, when specified.

SHOCK ABSORBING SWIVEL HANGER

For 4-Inch Outlet Box



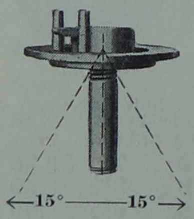
Effective protection from excessive vibration, and an always-level swivel hanger. Allows a total swing of approximately 15° in any direction. Consists of a small compact cast-iron housing containing two-coiled springs so arranged that the weight of the fixture and stem floats between the springs, absorbing shock both above and below fixture support. Attaches to 4-inch outlet box. However, addition of small cast-iron cover adapts housing to ½-inch conduit. The attachment which receives fixture stem is tapped for ½-inch conduit. Finish: baked green enamel.

Cat. No.	Depth Inches	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
343493	1¾	10	25	**$1.00**

Pipe nipple not included.

ALWAYS-LEVEL SWIVEL HANGER

For 4-Inch Outlet Box



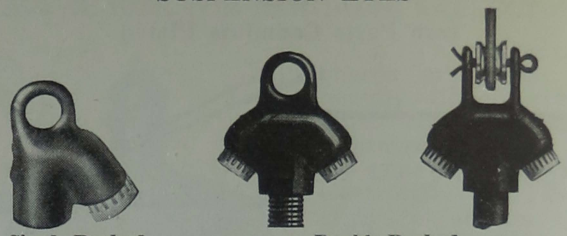
Supports fixture so it may swing 15° in any direction when struck. The Always-Level Swivel Hanger is a ball-and-socket arrangement. It is made of cast-iron, galvanized and baked green enamel finished.

It serves as a 4-inch outlet box cover directly supporting the fixture.

Cat. No.	Description	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
350225	Tapped for ½-in. Cond.†	10	15	**$0.30**

†¾-inch conduit mounting will be furnished when specified at **$0.50** each. Pipe nipple not included.

SUSPENSION EYES



Single Bushed For Low Wattage

Double Bushed For 200 Watts and Over

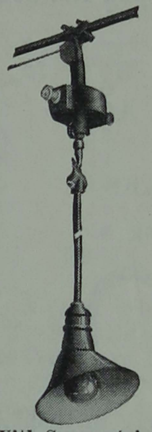
Tapped for ½-Inch Conduit

Cat. No.*	Description	Depth Inches	Wt. Lbs.	Price Each
353750	Single bushed	3¼	12	**$0.85**
335113	Double bushed	3⅜	15	**.95**
344535	With insulated ring	5	23	**1.15**

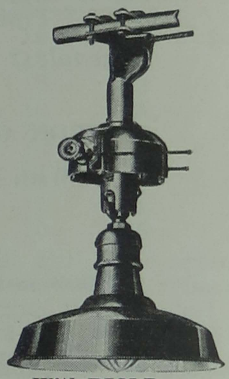
*Includes ½x¾-inch straight pipe nipple Cat. No. 334879. Standard Package, 10.

AUTOMATIC CUT-OUT HANGERS

For Fixtures on Multiple Circuits



With Symmetrical Angle Reflector



With RLM Dome Reflector

The automatic cut-out hanger shown with the symmetrical angle reflector may be used with this type of reflector and other fixtures designed to throw light in some particular direction because the fixture, as it re-enters the hanger, always returns to its former position.

The universal suspension clamp furnished with the cut-out hanger shown with RLM dome reflector, may be used for fastening the hanger to the ceiling on conduit, cable or on a pipe bracket with ¾-inch to 1¼-inch pipe. A swivel pole pulley and $\frac{3}{16}$ or ¼-inch weatherproof cord or ¼-inch galvanized ebony wire rope should be used in connection with this device.

Automatic cut-out hangers facilitate cleaning. They also furnish absolute protection against accidental short-circuits or contact with live wires.

Operation

The rope for lowering an automatic cut-out is carried to the nearest column or wall where the attendant hooks on a hand line, then a pull on the rope disconnects the fixture and lowers it. Next, a pull on the rope raises the fixture to its original position, restoring the circuit and automatically locking the fixture in place so that it is supported independently of the rope.

Cat. No.	Description	Std. Pkg. Qty.	Std. Pkg. Wt. Lb.	Price Each
345338†	With ½-in. male thread fitting	10	20	**$10.00**
336842	Suspension fittings (sister-hook, pipe cap and stud)	10	2	**1.00**

†Does not include socket, reflector or rope.

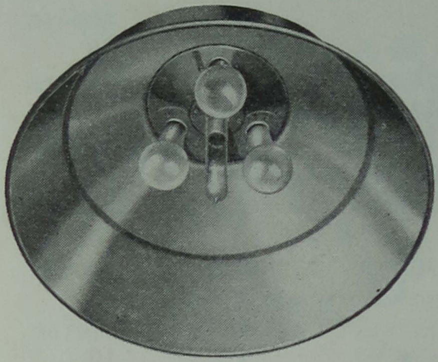
WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

HIGH INTENSITY MERCURY LIGHTING

250 AND 400-WATT COMBINATION UNITS

For Mercury and Incandescent Lamps

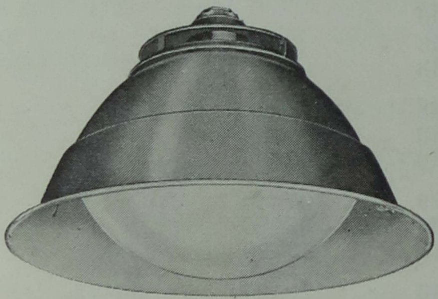
Westinghouse Combination Units effectively and efficiently mix the light of high intensity mercury lamps with a quantity of light from ordinary incandescent lamps. They are for various applications of industrial lighting where color correction is necessary.



Lamp Arrangement. 250-Watt Combination Unit for Mercury and Incandescent Lamps

250-Watt Unit

For mounting heights of 8 to 18 feet. Spacing should not exceed 1¼ times the mounting height. Three 60, 75 or 100-watt incandescent lamps can be used. Three 150-watt lamps may be used but the operating temperature may be too high to permit restarting of the mercury lamp with the incandescent lamps burning.



400-Watt Combination Unit for Mercury and Incandescent Lamps

400-Watt Unit

For mounting heights of 12 to 18 feet. Spacing should not exceed 1¼ times the mounting height. Three 150-watt or smaller incandescent lamps can be used. Three 200-watt lamps may be used but operating temperature may be too high to permit restarting mercury lamp while incandescent lamps are burning.

Construction

The complete unit consists of an aluminum reflector with socket assembly and a Monax diffusing hinged glass bowl. Reflectors are made from No. 14 gauge commercially pure etching grade aluminum sheet. Socket assembly consists of three medium sockets for incandescent lamps, and a socket for mercury lamp attached to top of reflector. The slip type louvered cover provides ventilation for the socket and allows for wiring or inspection after reflector is in position.

Entire surface is finished by the Alzak process. See separate listings for transformers required. Use safe change hangers for greater flexibility and maintenance ease between fixture and transformer.

250 AND 400-WATT DOME REFLECTORS

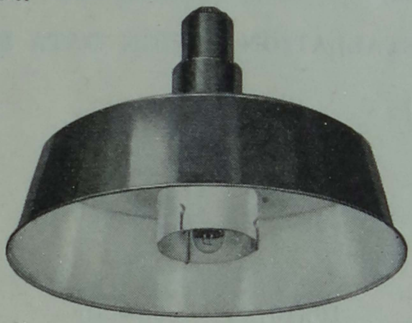
For Low Mounting

Westinghouse Dome Type low mounting reflectors are furnished in one-piece socket reflector type for ½-inch or ¾-inch conduit mounting. They are also available with WEMCO Quick-Change hoods for ½-inch conduit or 4-inch outlet box. This is a two-piece design for facilitating ease of installation and maintenance.

250-Watt Dome Reflector and Glass Cover

250-Watt Unit

The 250-watt unit consists of a dome reflector and dust-tight hinged glass cover—the glass being acid etched on the inside and smooth on the outside. This luminaire is supplied complete with cover. Satisfactory operation of the 250-watt mercury lamp is insured only when operated in enclosed unit.



400-Watt Dome Reflector

400-Watt Unit

The 400-watt unit has a glass collar of Monax homogeneous glass supported by three steel cadmium plated support rods locked securely in the top portion of the reflector. This glass collar surrounds the lower portion of the lamp providing the same angle of cut-off (17½°) as the RLM Dome. Lamp or collar may be removed easily without removing supports.

Construction

Dome Type Reflectors are similar in shape to RLM Dome incandescent reflectors. The 250-watt and 400-watt reflectors are drawn from 24 and 22-gauge iron sheet, respectively.

The 250-watt units use medium sockets; the 400-watt units use the mogul type skeleton socket. Both sockets have high-heat wax and nickel-plated metal parts.

In the one-piece socket reflector, a cast brass socket adapter, tapped for conduit, provides a rigid support for the socket.

The Quick-Change socket is a two-piece type, part in the reflector and part in the hood. Wiring terminals in hood part of socket are readily accessible and easy to wire. As the reflector is screwed into the hood the two parts engage making positive electrical connection. Polarity cannot be reversed. Reflectors are porcelain enameled as follows: one ground coat all over; two white coats inside and one green coat outside with black bead.

See separate listings for transformers required.

For tabular listings, see following pages.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

HIGH INTENSITY MERCURY LIGHTING EQUIPMENT

250 AND 400-WATT COMBINATION UNITS

For Mercury and Incandescent Lamps

COMPLETE UNITS AND PARTS

Cat. No.*† ½-In. Conduit	Recommended Lamp Wattage	Diameter Inches	Depth Inches	Standard Pkg. Quantity	Standard Pkg. Wt. Lbs.	Price Each
Combination Units Complete with Glass Bowl						
890054	1–250–Watt Mercury 3–100–Watt Incandescent	20¾	12⅜	1	25	**$21.00**
890015	1–400–Watt Mercury 3–150–Watt Incandescent	24¼	16	1	30	**24.90**
Combination Units Only						
890055	1–250–Watt Mercury 3–100–Watt Incandescent	20¾	11⅛	1	17	**16.20**
890016	1–400–Watt Mercury 3–150–Watt Incandescent	24¼	14½	1	20	**17.65**
Glass Bowl Only						
890056	1–250–Watt Mercury 3–100–Watt Incandescent	16	5½	1	8	**4.80**
890017	1–400–Watt Mercury 3–150–Watt Incandescent	18	6⅜	1	10	**7.25**

*Catalog numbers do not include lamps.
†Hoods for ¾-inch will be furnished, when specified, at same price.

INSTALLATION DESIGN DATA FOR MERCURY-INCANDESCENT COMBINATION UNITS

Minimum Mounting Height (Feet)	Approx. Spacing (Feet)	Area Per Outlet (Sq. Ft.)	Conditions Factor	AVERAGE FOOTCANDLES			
				250-Watt Unit		400-Watt Unit	
				1–250 W. Merc. 3–75 W. Inc.	1–250 W. Merc. 3–100 W. Inc.	1–400 W. Merc. 3–150 W. Inc.	1–400 W. Merc. 3–200 W. Inc.
8	9x9	72–90	Favorable	48–60			
			Average	42–53			
			Unfavorable	30–38			
9	10x10	90–110	Favorable	39–48	44–54		
			Average	34–42	39–47		
			Unfavorable	25–30	28–34		
10	11x11	110–132	Favorable	33–39	37–44		
			Average	29–34	32–39		
			Unfavorable	21–25	23–28		
11	12x12	132–170	Favorable	25–33	29–37	56–72	
			Average	22–29	25–32	49–63	
			Unfavorable	16–21	18–23	35–45	
12	14x14	170–226	Favorable	19–25	22–29	42–56	48–63
			Average	17–22	19–25	37–49	42–55
			Unfavorable	12–16	13–18	26–35	30–40
13	16x16	226–290	Favorable	15–19	17–22	33–42	37–48
			Average	13–17	15–19	29–37	32–42
			Unfavorable	9.5–12	10–13	20–26	23–30
14½	18x18	290–360	Favorable	12–15	14–17	26–33	30–37
			Average	11–13	12–15	23–29	26–32
			Unfavorable	7.5–9.5	8.5–10	17–20	19–23
16	20x20	360–450	Favorable		11–14	21–26	24–30
			Average		9.5–12	19–23	21–26
			Unfavorable		6.8–8.5	13–17	15–19
18	22x22	450–530	Favorable			18–21	20–24
			Average			16–19	18–21
			Unfavorable			11–13	13–15

CONDITIONS FACTOR—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width equals **mounting height.**

Footcandle values are calculated to include normal depreciation, and initial values will be considerably higher.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

HIGH INTENSITY MERCURY LIGHTING EQUIPMENT

250 AND 400-WATT DOME REFLECTORS

For Low Mounting

COMPLETE UNITS AND PARTS

Mercury Lamp Wattage	½-In. Conduit Cat. No.*†	½-In. Conduit Price Each	4-In. Outlet Box Cat. No.*	4-In. Outlet Box Price Each	Diam. Inches	Depth, Inches Conduit	Depth, Inches Outlet Box	Std. Pkg. Quan.	Std. Pkg. Wt. Lb.
250	890030‡	$10.40	....	....	18	11 5/16	....	5	55
One-Piece Complete Unit with Hinged Cover									
400	890005	8.70	....	....	22	15	....	4	48
One-Piece Complete Unit with Glass Collar									
250	890032‡	10.80	890033‡	$10.80	18	11 7/16	11 7/16	5	55
Wemco Quick-Change Complete Unit with Hinged Cover									
400	890008	9.10	890009	9.10	22	15⅜	15⅜	4	48
Wemco Quick-Change Complete Unit with Glass Collar									
250	890034	4.90	890034	4.90	18	7⅞	7⅞	5	26
Wemco Quick-Change Reflector Only									
400	890007	8.30	890007	8.30	22	13½	13½	4	44
Wemco Quick-Change Reflector and Glass Collar									
250	347919	.80	347920	.80	....	1⅞	1⅞	10	10
Wemco Quick-Change Hoods Only									
400	347919	.80	347920	.80	....	1⅞	1⅞	10	10
Hinged Glass Cover Only									
250	789314	5.10	789314	5.10	18	....	....	5	23
Glass Lens Only									
250	789093	2.80	789093	2.80	18	....	....	5	19
Glass Collar Only									
400	888876	1.00	888876	1.00	5½	2 13/16	2 13/16	4	2

*Catalog numbers do not include lamps.

†¾-inch can be furnished, when specified, at same price.

If clear lens is desired, order similar to above complete unit order numbers except with clear lens. Deduct **$1.00** from price.

INSTALLATION DESIGN DATA FOR MERCURY DOME REFLECTORS

Minimum Mounting Height Ft.	Spacing	Area Per Outlet	Conditions Factor	Average Footcandles 250 Watt	Average Footcandles 400 Watt
8½	9x9	72–90	Favorable	38–47	
			Average	33–41	
			Unfavorable	26–32	
9	10x10	90–110	Favorable	31–38	
			Average	27–33	
			Unfavorable	21–26	
10	11x11	110–132	Favorable	26–31	55–65
			Average	22–27	47–57
			Unfavorable	18–21	38–45
10½	12x12	132–170	Favorable	20–26	42–55
			Average	17–22	37–47
			Unfavorable	14–18	29–38
12	14x14	170–226	Favorable	15–20	32–42
			Average	13–17	28–37
			Unfavorable	10–14	22–29
13	16x16	226–290	Favorable	12–15	25–32
			Average	10–13	22–28
			Unfavorable	8.0–10	17–22
14½	18x18	290–362	Favorable	9.3–12	20–25
			Average	8.1–10	17–22
			Unfavorable	6.4–8.0	14–17
16	20x20	362–450	Favorable	7.5–9.3	16–20
			Average	6.5–8.1	14–17
			Unfavorable	5.2–6.4	11–14

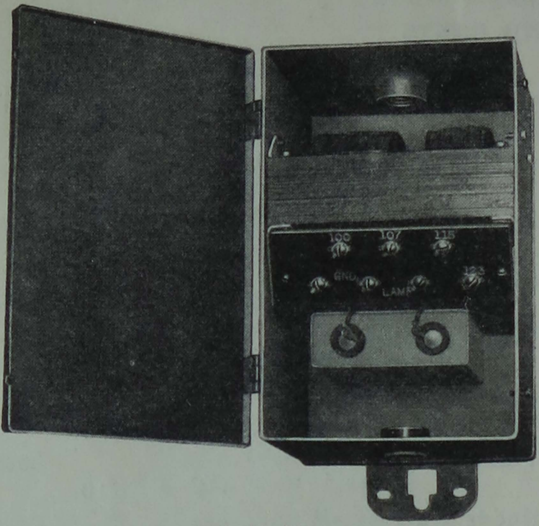
CONDITIONS FACTOR—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width equals **mounting height.**

Footcandle values are calculated to include normal depreciation and initial values will be considerably higher.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

HIGH INTENSITY MERCURY LIGHTING TRANSFORMERS

For High Intensity Mercury Lamps



Interior View
250 or 400-Watt

High Intensity Mercury lamps will operate only on alternating current circuits. The operating characteristics of these lamps are such that they require a transformer with high internal reactance to operate **each** lamp—they cannot be operated directly on multiple circuits. Acting like a valve, the transformer regulates the current of the lamp during the starting period and limits it during normal operation.

These transformers are designed for 250-watt and 400-watt Mercury lamps operating on 115-volt and 230-volt circuits. The universal mounting feature provides either for suspension or wall mounting installations. A heavy steel case encloses the entire transformer, and access to it is provided by the hinged cover, which is held closed by two screws.

All units are furnished with capacitors, as units without power factor correction draw approximately twice the current as power factor corrected units—the increased wiring capacity cost practically offsets the added cost for factor correction.

Construction

The transformer unit consists essentially of a transformer, capacitor for power factor correction, terminal board for making line and fixture connections, and a universal mounting case. Transformer is magnetic shunt type. Capacitor is inerteen type. Heavy sheet steel case. Hubs, tapped for conduit, ¾-inch at top, ½-inch at bottom, are provided for suspension mounting and are closed with plugs when unit is used for wall mounting. Heavy brackets on back of case can be removed or reversed if unit is suspension mounted. Knockouts on side and end of case for ½-inch conduit installations. Cases finished in blue-gray baked enamel.

COMPLETE UNITS FOR 60-CYCLE CIRCUITS

Cat. No.	Voltage Taps	Power Factor	Shp.Wt. Lbs.	Price Each
	250-Watts—Type H-2			
1120075	107/115/123	85-90%	29	**$15.00**
1120074	220/230/240	85-90%	29	**15.00**
	400-Watts—Type H-1			
1120073	100/107/115/123	90-95%	29	**15.00**
1120072	200/215/230/245	90-95%	29	**15.00**

Note: Units for 50-cycle circuits will be furnished on special order. Prices quoted on request.

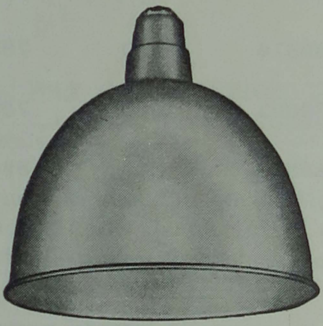
HIGH INTENSITY MERCURY LIGHTING 250 AND 400-WATT ALZAK ALUMINUM REFLECTORS

Westinghouse Aluminum Reflectors are suited for general lighting of foundries, machine shops, stamping departments, power plants, receiving and shipping departments and sheet metal departments.

250-Watt Aluminum Reflector and Glass Cover

250-Watt Unit

The 250-watt unit is furnished in one-piece socket reflector type for ½-inch or ¾-inch conduit mounting.



400-Watt Aluminum Reflector

400-Watt Unit

The 400-watt reflectors are furnished in Locklite hood for ½-inch or ¾-inch conduit or 3¼-inch or 4-inch outlet box mounting. They are also furnished in one-piece socket reflector type for ½-inch or ¾-inch conduit mounting.

Construction

Reflectors are spun from commercially pure aluminum sheet. The 250-watt reflectors are equipped with a medium two-piece socket and the 400-watt reflectors with mogul type skeleton sockets.

The Locklite socket is two-piece type with one part in the hood and one part in the reflector. As the reflector is given a simple 60° clockwise turn in the hood, the socket parts engage and positive electrical contact is made as the hood locks on the reflector. Polarity cannot be reversed.

One-piece type units have cast-brass socket adapter tapped for conduit.

Satisfactory operation of the 250-watt mercury lamp is assured only when operated in enclosed units. The hinged glass cover is supported at three points. It is released by unsnapping two latches. A heavy water-proof felt supplies the gasket between the reflector and lens.

Entire surface is finished by the Alzak process for greater permanence and ease of cleaning. Westinghouse aluminum units are approved by the Underwriters' Laboratories, Inc.

See separate listing for transformers or reactors required to operate mercury lamps.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

HIGH INTENSITY MERCURY LIGHTING EQUIPMENT

250 AND 400-WATT ALZAK ALUMINUM REFLECTORS FOR GENERAL LIGHTING

COMPLETE UNITS AND PARTS

Distribution	Mounting Height Feet	Lamp Wattage	½-In Conduit† Cat. No.*	½-In Conduit† Price Each	4-In. Outlet Box Cat. No.	4-In. Outlet Box Price Each	Diam. Inches	Depth, Inches Conduit	Depth, Inches Outlet Box	Std. Pkg. Quan.	Std. Pkg. Wt.Lb.
			One-Piece Complete Unit with Hinged Cover								
....	Not over 20	250	**890023**	**$15.60**	....	....	16	13½	....	4	40
			One-Piece Complete Units								
Spread	18–30	400	**789585**	**14.50**	....	....	18	16¾	....	4	30
Medium	31–45	400	**789587**	**14.50**	....	....	18	18¼	....	4	30
Concentrating	46 and over	400	**789588**	**14.50**	....	....	18	19¼	....	4	30
			Locklite Complete Units								
Spread	18–30	400	**1119454**	**14.90**	**1119457**	**$14.90**	18	17⅛	16¾	4	30
Medium	31–45	400	**1119455**	**14.90**	**1119458**	**14.90**	18	18⅝	18¼	4	30
Concentrating	46 and over	400	**1119456**	**14.90**	**1119459**	**14.90**	18	19⅝	19¼	4	30
			Locklite Reflectors Only								
Spread	18–30	400	**892526**	**14.10**	**892526**	**14.10**	18	15⅛	15⅞	4	26
Medium	31–45	400	**892527**	**14.10**	**892527**	**14.10**	18	16⅝	16⅝	4	26
Concentrating	46 and over	400	**892528**	**14.10**	**892528**	**14.10**	18	17⅝	17⅝	4	26
			Locklite Hoods Only								
....	....	400	**892339**	**.80**	**892341**	**.80**	....	1⅞	....	10	20
			Hinged Glass Cover Only								
....	....	250	**341065**	**3.60**	**341065**	**3.60**	16	....	....	4	14
....	....	400	**341067**	**4.10**	**341067**	**4.10**	18	....	....	4	20
			Snap Glass Cover Only								
....	....	400	**890036**	**4.10**	**890036**	**4.10**	18	....	....	4	20
			Glass Lens Only								
....	....	250	**341069**	**1.50**	**341069**	**1.50**	16	....	....	4	12
....	....	400	**341070**	**1.80**	**341070**	**1.80**	18	....	....	4	16

*Catalog numbers do not include lamps.

Hoods for ¾-inch conduit will be furnished, when specified, at same price.

INSTALLATION DESIGN DATA FOR MERCURY HIGH BAY ALUMINUM REFLECTORS

Area Per Outlet and Approx. Spacing	Conditions Factor	AVERAGE FOOTCANDLES			
		250-Watt Low Mtg. 10–20 Ft.	400 Watt Spread 18–30 Ft.	400 Watt Medium 31–45 Ft.	400 Watt Concentrat. 46 Ft. and Over
90–110 10x10	Favorable	33–41			
	Average	28–34			
	Unfavorable	20–25			
110–135 11x11	Favorable	27–35			
	Average	23–28			
	Unfavorable	17–20			
135–170 12x12	Favorable	22–27	49–62	46–58	42–53
	Average	18–23	41–51	39–49	36–45
	Unfavorable	13–17	29–37	27–34	25–32
170–226 14x14	Favorable	16–22	37–49	35–46	32–42
	Average	14–18	30–41	29–39	27–36
	Unfavorable	10–13	22–29	21–27	19–25
226–290 16x16	Favorable	13–16	29–37	27–35	25–32
	Average	11–14	24–30	23–29	21–27
	Unfavorable	7.8–10	17–22	16–21	15–19
290–360 18x18	Favorable	10–13	23–29	22–27	20–25
	Average	8.5–11	19–24	18–23	17–21
	Unfavorable	6.3–7.8	14–17	13–16	12–15
360–490 20x20	Favorable	7.5–10	17–23	16–22	15–20
	Average	6.3–8.5	14–19	13–18	12–17
	Unfavorable	4.6–6.3	10–14	9.5–13	8.8–12
490–680 24x24	Favorable	5.4–7.5	12–17	12–16	11–15
	Average	4.5–6.3	10–14	9.7–13	8.9–12
	Unfavorable	3.3–4.6	7.3–10	6.8–9.5	6.4–8.8
680–900 28x28	Favorable		9.2–12	8.7–12	8.0–11
	Average		7.6–10	7.3–9.7	6.8–8.9
	Unfavorable		5.5–7.3	5.2–6.8	4.8–6.4
900–1160 32x32	Favorable		7.2–9.2	6.8–8.7	6.2–8.0
	Average		5.9–7.6	5.7–7.3	5.2–6.8
	Unfavorable		4.3–5.5	4.0–5.2	3.7–4.8
1160–1450 36x36	Favorable		5.7–7.2	5.4–6.8	5.0–6.2
	Average		4.7–5.9	4.5–5.7	4.2–5.2
	Unfavorable		3.4–4.3	3.2–4.0	3.0–3.7

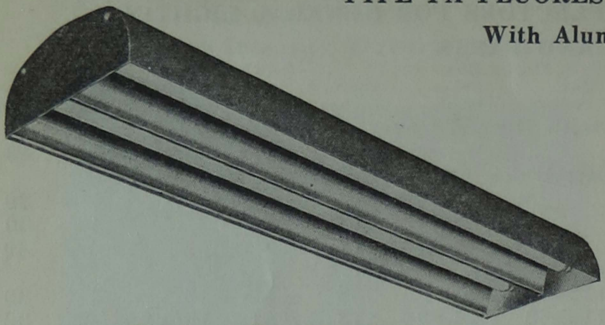
CONDITIONS FACTOR—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width is equal to **mounting height.**

Footcandle values are calculated to include normal depreciation and initial values will be considerably higher.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

TYPE FA FLUORESCENT LAMP LUMINAIRES

With Aluminum Reflectors



Two-Lamp Fluorescent Luminaire
Specular Aluminum Reflectors

Westinghouse Fluorescent Luminaires are designed for general or supplementary industrial lighting applications using Mazda Fluorescent lamps. When used with "daylight" Fluorescent lamps, a close approximation to standard artificial daylight is obtained without the use of filtering devices. Westinghouse Fluorescent Luminaires are available in 20-watt (FA-20), 30-watt (FA-30) and 40-watt (FA-40) sizes with concentrating or spread distribution.

Construction

Units consist of a housing, individual reflectors for each lamp, lamp holders, lamp starters and ballast equipment including starting compensator on two-lamp unit.

Housing is fabricated sheet-steel with closed ends, and completely shields all parts. Reflectors are accurately formed Alclad Aluminum sheet treated by the Alzak Process to assure permanent high efficiency and easy cleaning. The reflecting surface is specular finish for both concentrating and spread types. Contours provide maximum light output with cutoff of 65° from vertical when viewed normal to the lamp.

Lamp holder is sturdy bakelite, straight push contacting type.

Lamp starter consists of an aluminum container which fits a bayonet connection in the starter socket. The unit contains a glow switch and a condenser to minimize radio interference. It may be replaced as easily as the lamp itself.

Ballast equipment consists of standard current limiting devices. Twin ballast units with compensators are used with the 30-watt and 40-watt two-lamp luminaires to provide high power factor of 95%-99%, minimize cyclic flicker and to assure satisfactory lamp performance. Single-lamp, 40-watt luminaires are available with either high or low power factor ballast units. Three-lamp, 40-watt units have one 2-lamp and one high power-factor single lamp ballasts.

All luminaires are provided with a separable conduit flange which is arranged for ½-inch conduit mounting. (¾-inch conduit mounting can be supplied if specified.) All 30-watt and 40-watt units are furnished with two point suspension, 24-inch units single center point suspension. ½-inch knockouts in ends of each unit permit end-to-end connections to form a continuous light strip.

Conduit flanges are removable to facilitate mechanical and electrical connections to conduit system.

Units are wired complete with leads of sufficient length to make connections to line. Large handhole provided in top of housing to make line connections. On special request, units can be furnished unwired.

Housings are finished in silver-gray, two-coat outside and one coat inside baked enamel which is easily cleaned.

Units are approved by National Board of Fire Underwriters.

COMPLETE UNITS

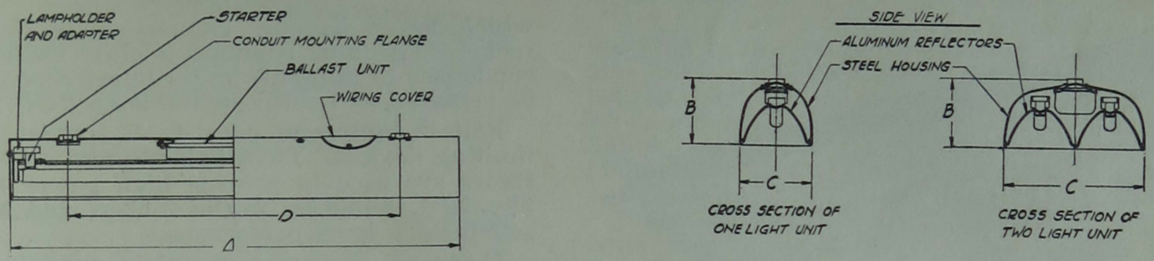
Catalog Number ½-Inch Conduit*			Lamps		%	Dimension Inches				Std. Pkg.		
Spread Distrib.	Concent. Distrib.	Type	Watts	No.	Power Factor	Lgth. "A"	Wdth. "C"	Dpth. "B"	Flange Centers "D"	Quan.	Wt. Lbs.	Price Each
					110-125 Volt—60 Cycle							
1120193	1120194	2–FA–20	20	2	55–60	24½	11½	6⅛	....	1	20	$22.55
1120790	1120791	2–FA–20	20	2	95–99	24½	11½	6⅛	....	1	20	25.65
1120181	1120184	FA–30	30	1	55–60	36½	5⅞	5¾	27	1	17	16.05
1120778	1120781	FA–30	30	1	90–92	36½	5⅞	5¾	27	1	17	18.40
1120195	1120198	2–FA–30	30	2	95–99	36½	11½	6⅛	27	1	26	32.05
1120187	1120190	FA–40	40	1	55–60	48½	5⅞	5¾	30	1	18	21.05
1120784	1120787	FA–40	40	1	90–92	48½	5⅞	5¾	30	1	18	23.45
1120201	1120204	2–FA–40	40	2	95–99	48½	11½	6⅛	30	1	32	40.55
1120207	1120210	3–FA–40	40	3	95–99	48½	17⅛	6⅝	30	1	38	64.35
					220-250 Volt—60 Cycle							
1120183	1120186	FA–30	30	1	55–60	36½	5⅞	5¾	27	1	17	14.55
1120780	1120783	FA–30	30	1	90–92	36½	5⅝	5¾	27	1	17	16.95
1120197	1120200	2–FA–30	30	2	95–99	36½	11½	6⅛	27	1	26	32.05
1120189	1120192	FA–40	40	1	55–60	48½	5⅞	5¾	30	1	18	19.65
1120786	1120789	FA–40	40	1	90–92	48½	5⅞	5¾	30	1	18	22.00
1120203	1120206	2–FA–40	40	2	95–99	48½	11½	6⅛	30	1	32	40.55
1120209	1120212	3–FA–40	40	3	95–99	48½	17⅛	6⅝	30	1	38	62.95
					ACCESSORIES							
346571	346571	....	----	--	Safe Change Hanger					10	15	$ 2.75
1119757	1119757	....	----	--	½-Inch Swivel					10	12	1.20
1119758	1119758	....	----	--	Chain Hook					10	8	.50
1120863	1120863	....	----	--	Chain Loop					10	2	.25

*¾-inch conduit mounting will be furnished at same price, when specified. Note—Units for 119-216 volt supply can be furnished, on special order, at same price as 220-250 volt units. 50 cycle units for 115 and 230 volt circuits available—order similar to Catalog Number, except 50 cycle. Addition to price on request. Lamps not included.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

TYPE FA FLUORESCENT LAMP LUMINAIRES

With Aluminum Reflectors



Construction Outline of Fluorescent Lamp Luminaires

INSTALLATION DESIGN DATA FOR TYPE FA FLUORESCENT LUMINAIRES

Mounting Height (Feet)		Maximum Spacing (Feet)	Area Per Outlet (Sq. Ft.)	Room Proportions	Approximate Average Footcandles with Daylight Lamps*					
					2-20 w. Lamps	1-30 w. Lamp	2-30 w. Lamps	1-40 w. Lamp	2-40 w. Lamps	3-40 w. Lamps
8	Spread Distribution	7x7	49	Favorable	Two-light, 20-watt luminaires are recommended only for supplementary lighting.	16	32	23	47	70
				Average		14	28	20	40	61
				Unfavorable		11	23	17	34	51
9		8x8	64	Favorable		12	24	18	36	54
				Average		11	21	16	31	47
				Unfavorable		9	18	13	26	39
9½		9x9	81	Favorable		10	19	14	28	42
				Average		8.5	17	12	25	37
				Unfavorable		7	14	10	20	31
10		10x10	100	Favorable		8	16	11	23	34
				Average		7	13	10	20	30
				Unfavorable		5.5	11	8	17	25
11		11x11	121	Favorable			13	9.5	19	28
				Average			11	8	17	25
				Unfavorable			9	7	14	20
12		12x12	144	Favorable					16	24
				Average					14	21
				Unfavorable					12	17
10	Concentrating Distribution**	6x7½	45	Favorable		18	36	26	53	79
				Average		16	32	24	47	70
				Unfavorable		13	26	19	39	58
11		7x9	63	Favorable		13	26	19	38	57
				Average		11	23	17	34	50
				Unfavorable		9.5	19	14	28	41
12		8x10	80	Favorable		10	20	15	30	45
				Average		9	18	13	26	40
				Unfavorable		7.5	15	11	22	33
13		9x11	99	Favorable		8	16	12	24	36
				Average		7.5	15	11	21	32
				Unfavorable		6	12	9	18	26
14		10x12½	125	Favorable			13	9.5	19	29
				Average			12	8.5	17	25
				Unfavorable			9.5	7	14	21
16		11½x14	161	Favorable					15	22
				Average					13	20
				Unfavorable					11	16

ROOM PROPORTIONS—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width is equal to **mounting height.**

Footcandle values are calculated on the basis of recommended reflection factors of ceiling and walls, and include allowance for normal depreciation.

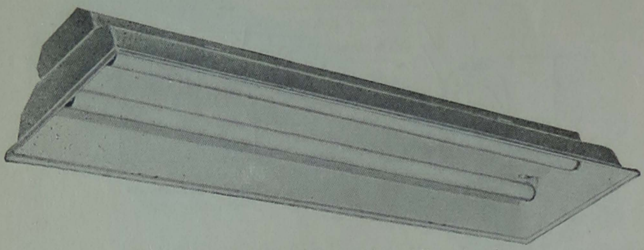
*When used with daylight fluorescent Mazda lamps multiply values by .85.

**Since the concentrating reflectors have an ellipsoidal distribution, rectangular spacings, as given, should be used where possible and luminaires should be installed with axis of lamps parallel to longer dimension of spacing.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

TYPE 2-FP-40 RLM FLUORESCENT LAMP LUMINAIRES

With Porcelain Enameled Reflector



Twin-Lamp RLM Fluorescent Luminaire
Porcelain Enameled Reflector

Westinghouse RLM Standard Fluorescent Luminaires are available only in a two-lamp, 40-watt, 48-inch size with sprad distribution.

Construction

Units consist of a hood, reflector, lamp holders, lamp starters and ballast equipment. Hood is fabricated sheet-steel hinged to the reflector on the long side to provide easy access for line connections or wiring and to facilitate installation.

Reflector is of highest grade white porcelain-enameled steel providing an over-all efficiency of 79% and a shielding angle of 13°. Lamp holder is sturdy bakelite, straight-push contacting type. Lamp starter consists of an aluminum container which fits a bayonet connection in the starter socket. The unit contains a glow switch and a condenser to minimize radio interference. It may be replaced as readily as the lamp itself.

Ballast equipment consists of standard current limiting devices. Twin ballast units and compensators are used to provide high power factor of 95%-99%, minimize cyclic flicker, and to assure satisfactory lamp performance.

Units are arranged for rigid conduit, flexible conduit or chain suspension mounting. For rigid or flexible conduit, two ½-inch knockouts on 30-inch centers on top of hood are provided. For chain suspension, two closed loops are available. Hooks or ½-inch conduit swivels are also available.

Units are furnished completely wired. Unwired units supplied on special order include ballast and compensator assembled, unassembled sockets, lamp starters and full-length leads of proper size wire.

Units are listed by Underwriters' Laboratories, Inc., and the RLM Standards Institute and are so labeled.

Accessories—End knockouts have smaller knockout in center to permit installation of switch: for 110-volt, single-pole Levolier switch add **$1.00** to price of unit. For 220-volt, double-pole switch add **$1.85** to price of unit.

COMPLETE UNITS—WIRED*—60-CYCLE†

Cat. No.	Luminaire Type	Lamps Watts	Lamps Number	Circuit Volts	Standard Package Quantity	Standard Package Weight	Price Each**
1120129	2–FP–40	40	2	110–125	1	39	**$21.16**
1120130	2–FP–40	40	2	199–216	1	39	**21.16**
1120131	2–FP–40	40	2	220–250	1	39	**21.16**

Chain loops furnished on request at no extra charge, when ordered with complete units.

*Unwired units furnished on special order at a decrease in price of **$0.75.**

†50-cycle units available on special order for 115 or 230-volt circuits at **$2.05** additional.

**Lamps not included.

INSTALLATION DESIGN DATA FOR 2-FP-40 RLM FLUORESCENT LUMINAIRES

Mounting Height (Feet)		Maximum Spacing (Feet)	Area Per Outlet (Sq. Ft.)	Room Proportions	Approx. Average* Footcandles On Working Plane
8		7x7	49	Favorable	45
				Average	40
				Unfavorable	33
8½	**Use 10' Mounting Height Where Possible**	8x8	64	Favorable	34
				Average	30
				Unfavorable	25
9		9x9	81	Favorable	27
				Average	24
				Unfavorable	20
10		10x10	100	Favorable	22
				Average	19
				Unfavorable	16
11		11x11	121	Favorable	18
				Average	16
				Unfavorable	13
12		12x12	144	Favorable	15
				Average	13
				Unfavorable	11

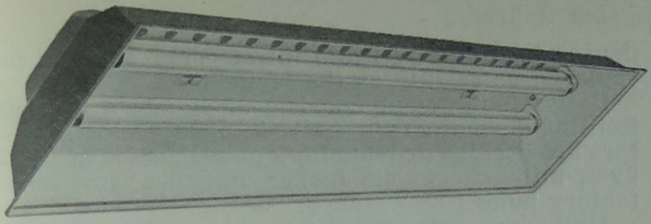
ROOM PROPORTIONS—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room is equal to **mounting height.**

Footcandle values are calculated on the basis of recommended reflection factors of ceiling and walls, and include allowance for normal depreciation.

*When used with 40 watt (daylight) Fluorescent Mazda lamps. When used with 40-watt daylight Fluorescent Mazda Lamps, multiply values by .85.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

TYPE 2-FP-100 RLM FLUORESCENT LAMP LUMINAIRES



Westinghouse Type 2-FP-100 RLM Fluorescent Luminaires are designed for general lighting where high levels of illumination or mounting heights up to 20 feet are required.

Hood is sheet steel with all auxiliary equipment mounted and wired as a part of the hood assembly.

Reflectors are available with or without diffused openings in the top of the reflector. Lamp holders are sturdy Bakelite, mogul size, twist-turn contacting type. Lamp starters are standard Type FS-6, mounted between lamps for convenience. Ballast equipment: Standard two-lamp provides high power factor, minimizes cyclic flicker, and assures satisfactory performance.

Units furnished completely wired. Unwired units supplied on special order include ballast assembled, unassembled sockets, lamp starters and full-length leads of proper size wire.

COMPLETE UNITS—WIRED* 60-CYCLE†

Cat. No.		Luminaire Type	Lamps Watts	Lamps Number	Circuit Volts	Std. Pkg. Qty.	Std. Pkg. Weight	Price Each**
1121928	Totally Direct Type	2-FP-100	100	2	110-115	1	73	**$46.15**
1121929		2-FP-100	100	2	199-216	1	73	**46.15**
1121930		2-FP-100	100	2	220-250	1	73	**46.15**
1121932	Diffuser Type	2-FP-100	100	2	110-115	1	73	**47.65**
1121933		2-FP-100	100	2	199-216	1	73	**47.65**
1121934		2-FP-100	100	2	220-250	1	73	**47.65**
346571	Safe Chain Hanger, two-wire					10	15	**2.75**
1119757	Swivel, ½-inch Conduit					10	12	**1.20**
1119758	Chain Hook					10	3	**.50**
1120863	Chain Loop‡					10	2	**.25**

*Unwired units furnished on special order at a decrease in price of **$0.75.**
†50-Cycle units available on special order for 115 or 230-volt circuits, prices furnished on request.
‡Chain loops furnished on request at no extra charge, when ordered with complete units.
**Lamps not included.

INSTALLATION DESIGN DATA FOR TYPE 2-FP-100 RLM FLUORESCENT LUMINAIRE

Mounting Height Above Floor (Feet)		Maximum Spacing (Feet)	Area Per Outlet (Sq. Ft.)	Room Proportion	Approx. Average* Footcandles On Working Plane 3′ Above Floor; White Lamps	
					Direct Type	Diffuser Type
9		9x9	81	Favorable	53	54
				Average	47	47
				Unfavorable	35	36
10	Use at least 10′ mounting height wherever possible	10x10	100	Favorable	43	44
				Average	36	38
				Unfavorable	28	29
11		11x11	121	Favorable	35	36
				Average	30	31
				Unfavorable	23	24
12		12x12	144	Favorable	29	30
				Average	25	26
				Unfavorable	19	20
13		13x13	169	Favorable	25	26
				Average	22	22
				Unfavorable	17	17
14		14x14	196	Favorable	22	23
				Average	19	19
				Unfavorable	14	15
15		15x15	225	Favorable	19	20
				Average	16	17
				Unfavorable	13	14
16		16x16	256	Favorable	17	17
				Average	14	15
				Unfavorable	11	12
17		17x17	289	Favorable	15	15
				Average	12	14
				Unfavorable	10	11
18		18x18	324	Favorable	14	14
				Average	11	12
				Unfavorable	9	9

ROOM PROPORTIONS—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width is equal to **mounting height.**

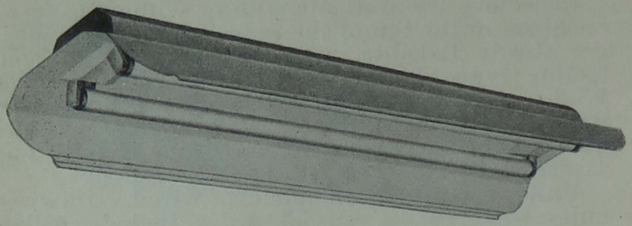
Footcandle values are calculated on the basis of recommended reflection factors of ceiling and walls, and include allowance for normal depreciation.

*When used with 40-watt Daylight Fluorescent Mazda "F" Lamps, multiply values by .85.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

TYPE 2-FPR-40 FLUORESCENT LAMP LUMINAIRES

With Porcelain Enameled Reflector



Twin-Lamp Open-End Fluorescent Luminaire Porcelain Enameled Reflector

Westinghouse Open-End Fluorescent Luminaires are designed for general or supplementary lighting in low bay industrial areas using Mazda F Fluorescent lamps. Westinghouse Type FPR Luminaires also are available in a two-lamp, 100-watt, 60-inch size with spread distribution.

Construction

Units consist of a hood, reflector, lamp holders, lamp starters and ballast equipment. Hood is fabricated sheet-steel hinged to reflector on the long side to provide easy access for line connections or wiring and to facilitate installation.

Reflector is of highest grade white porcelain enameled steel providing high over-all efficiency and a shielding angle of 13°. Lamp holder is sturdy Bakelite, straight push contacting type. Lamp starter consists of an aluminum container which fits a bayonet connection in the starter socket. Unit contains a glow switch and condenser to minimize radio interference. It may be replaced as readily as the lamp itself.

Ballast equipment consists of standard current limiting devices. Twin ballast units and compensators are used to provide high power factor of 95%-99%, minimize cyclic flicker and to assure satisfactory lamp performance.

Units are arranged for rigid conduit, flexible conduit, or chain suspension mounting. For rigid or flexible conduit, two ½-inch knockouts on 30-inch centers on top of hood are provided. Chain loops are furnished when requested, for chain suspension—chain hooks are available as accessories where loops are not applicable. Where angular mounting is required ½" conduit swivels are also available as accessories.

Units are furnished completely wired. Unwired units supplied on special order include ballast and compensator assembled, unassembled sockets, lamp starters and full-length leads of proper size wire.

Reflector is first completely covered by a ground coat of fused porcelain enamel. The outside surface is then covered with fused gray porcelain enamel, and the entire reflecting surface with white porcelain enamel. The hood is finished with a smooth silver gray baked enamel paint.

Units are approved by Underwriters' Laboratories, Inc., and are so labeled.

Accessories

For 110-volt, single-pole Levolier switch add **$1.00** to price of unit. For 220-volt, double-pole switch add **$1.85** to price of unit.

INSTALLATION DESIGN DATA FOR TYPE 2-FPR-40 FLUORESCENT LUMINAIRES

Cat. No.	Luminaire Type	Lamps Watts	Lamps No.	Circuit Volts	Std. Pkg. Quan.	Std. Pkg. Wt. Lbs.	Price Each‡
1121005§	2-FPR-40	40	2	110-125	1	36	**$21.15**
1121006§	2-FPR-40	40	2	199-216	1	36	**21.15**
1121007§	2-FPR-40	40	2	220-250	1	36	**21.15**

Accessories (same as listed for Type FPC).

*Unwired units furnished on special order at a decrease in price of $0.75.

†50-cycle units available on special order for 115 or 230-volt circuits at $2.05 additional.

‡Lamps not included.

§Chain loops furnished on request at no extra charge when ordered with complete unit.

INSTALLATION DESIGN DATA FOR TYPE 2-FPR-40 FLUORESCENT LUMINAIRES

Mounting Height (Feet)		Maximum Spacing (Feet)	Area Per Outlet (Sq. Ft.)	Room Proportions	Approx. Average¶ Footcandles On Working Plane White Lamps
8	Use 10' Mounting Height Where Possible	7 x 7	49	Favorable Average Unfavorable	45 40 33
8½		8 x 8	64	Favorable Average Unfavorable	34 30 25
9		9 x 9	81	Favorable Average Unfavorable	27 24 20
10		10 x 10	100	Favorable Average Unfavorable	22 19 16
11		11 x 11	121	Favorable Average Unfavorable	18 16 13
12		12 x 12	144	Favorable Average Unfavorable	15 13 11

ROOM PROPORTIONS— Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width is equal to **mounting height.**

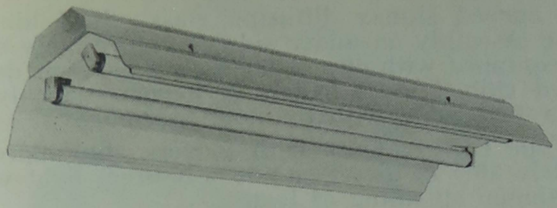
Footcandle values are calculated on the basis of recommended reflection factors of ceiling and walls, and include allowance for normal depreciation.

¶**When used with 40-watt daylight** Fluorescent Mazda lamps, multiply values by .85.

WESTINGHOUSE INDUSTRIAL LIGHTING EQUIPMENT

TYPE FPC FLUORESCENT LAMP LUMINAIRES

With Porcelain Enameled Reflector



Twin-Lamp Open-End Fluorescent Luminaire For Continuous Strip Mounting

Westinghouse Type FPC Open-End Fluorescent Luminaires are designed for general or supplementary continuous strip lighting in low bay industrial areas using Mazda F Fluorescent lamps. The square end design provides for end-to-end mounting.

Type FPC Fluorescent Luminaires are available only in two-lamp, 40-watt, 48-inch size with spread distribution.

Construction

Units consist of a hood, reflector, lamp holders, lamp starters and ballast equipment. Hood is fabricated sheet-steel hinged to the reflector on the long side to provide easy access for line connections or wiring and to facilitate installation.

Reflector is of highest grade white porcelain enameled steel providing high over-all efficiency and a shielding angle of 13°. Lamp holder is sturdy Bakelite, straight push contacting type. Lamp starter consists of an aluminum container which fits a bayonet connection in the starter socket. Unit contains glow switch and condenser to minimize radio interference. It may be replaced as readily as the lamp itself.

Ballast equipment consists of standard current limiting devices. Twin ballast units and compensators are used to provide high power factor of 95%–99%, minimize cyclic flicker and to assure satisfactory lamp performance.

Units are arranged for rigid conduit, flexible conduit, or chain suspension mounting. For rigid or flexible conduit, two ½-inch knockouts on 30-inch centers on top of hood are provided. For chain suspension, two closed loops are available. Special connecting bushings are furnished for end-to-end mounting and straight-through wiring. Half-inch conduit knockouts at each end are provided for easy installation of bushings.

Units are furnished completely wired. Unwired units supplied on special order include ballast and compensator assembled, unassembled sockets, lamp starters and full-length leads of proper size wire.

Units are approved by National Board of Fire Underwriters, and are so labeled.

COMPLETE UNITS—WIRED*—60-CYCLE†

Cat. No.	Luminaire Type	Lamps		Circuit Volts	Std. Pkg.		Price Each‡
		Watts	No.		Quan.	Wt. Lbs.	
1121008	2-FPC-40	40	2	110-125	1	36	**$18.00**
1121009	2-FPC-40	40	2	199-216	1	36	**18.00**
1121010	2-FPC-40	40	2	220-250	1	36	**18.00**

ACCESSORIES

Cat. No.	Description	Std. Pkg.		Price Each
		Quan.	Wt. Lbs.	
346571	Safe Change Hanger, two-wire	10	15	**$2.75**
1119757	Swivel for ½-inch conduit	10	12	**1.20**
1119758	Chain Hook	10	8	**.50**
1120863¶	Chain Loop	10	3	**.25**

*Unwired units furnished on special order at a decrease in price of **$0.75**.

†50-cycle units available on special order for 115 or 230-volt circuits at **$2.05** additional.

‡Lamps not included.

¶Chain loops furnished on request at no extra charge, when ordered with complete units.

INSTALLATION DESIGN DATA FOR TYPE FPC FLUORESCENT LUMINAIRES

Mounting Height Above Floor (Feet)	Maximum§ Spacing (Feet)	Room Proportions	Average Footcandles on Working Plane (3' Above Floor) White Lamps*
8	7½	Favorable	74
		Average	65
		Unfavorable	54
8½	8	Favorable	69
		Average	61
		Unfavorable	50
9	9	Favorable	61
		Average	54
		Unfavorable	45
10	10½	Favorable	52
		Average	46
		Unfavorable	38
11	12	Favorable	46
		Average	41
		Unfavorable	34
12	13½	Favorable	41
		Average	36
		Unfavorable	30

ROOM PROPORTIONS— Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width is equal to **mounting height.**

Footcandle values are calculated on the basis of recommended reflection factors of ceiling and walls, and include allowance for normal depreciation.

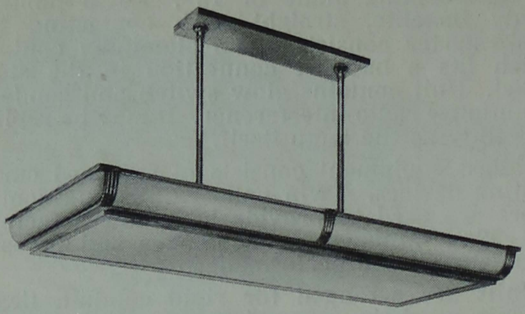
§Spacing between rows of units mounted end-to-end.

*When used with daylight Mazda Fluorescent lamps, multiply footcandle values by .85.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

TYPE CL-160 FLUORESCENT LUMINAIRES

Four-Lamp, Semi-Indirect



Westinghouse Type CL-160 Fluorescent Luminaires are suitable for general commercial lighting installations such as in offices, stores and public buildings.

Construction

Heavy U-shaped steel bridge equipped with adjustable nipple and hickey mounts directly on ⅜-inch stud in outlet box for single-point mounting. Free-turning swivel stems at each end of the bridge provide for attachment of fixture body.

Stems are of one-piece, seamless tubing threaded ¼-inch I.P.S. at both ends. Upper end is threaded and locked into suspension swivel and lower end into the fixture support with provision for adjustment to level fixture after it is hung.

Fixture body with open-top metal frame is heavy steel with decorative die-cast ends. Side panels are curved Monax diffusing glass. Steel hinged door assembly on under side of fixture body may be equipped with clear ribbed glass panel or decorated ribbed glass panel. A louver assembly is interchangeable with the door assembly.

Type CL-160 units with louvers give approximately 30% of direct and 70% indirect light with maximum shielding of lamps.

Type CL-160 units with clear ribbed glass panel give 75% indirect light and add diffusion to the direct light.

Type CL-160 units with decorated ribbed glass panel give 78% indirect light and maximum diffusion of direct light.

Lamp holder is sturdy Bakelite straight-push contacting type. Lamp starter consists of standard FS-4 starter switch with condenser to minimize radio interference. Starters are enclosed in aluminum containers with bayonet type contacts and are easily accessible for replacement.

Ballast equipment consists of standard current-limiting devices in special case with built-in compensators. Provides high power factor of 95%–99%, minimizes cyclic flicker and assures satisfactory lamp life. Capacitors are easily removable for replacement.

Units are completely wired except line leads which are furnished for line connections.

Neutral, Pearlite finish to blend with most architectural interiors.

COMPLETE UNITS—WIRED—60-CYCLE

Cat. No.	Luminaire Type	Description	Lamps* Watts	Lamps* No.	Circuit Volts	Dimensions in Inches Fixture Length	Dimensions in Inches Fixture Width	Dimensions in Inches Overall Suspension Length	Price Each
1121252	CL-160	Louver Bottom	40	4	110-125	49⅞	16¾	34⅛	**$58.65**
1121253	CL-160	Clear Ribbed Glass Bottom	40	4	110-125	49⅞	16¾	34¼	**58.65**
1121254	CL-160	Decorated Ribbed Glass Bottom	40	4	110-125	49⅞	16¾	34¼	**61.90**
1121117	....	Louver only	----	--	-------------	-------	-------	-------	**6.20**
1121119	....	Clear Ribbed Glass Bottom Panel	----	--	-------------	-------	-------	-------	**1.65**
1121120	....	Decorated Ribbed Glass Bottom Panel	----	--	-------------	-------	-------	-------	**4.45**

*Lamps are not included with fixtures.

INSTALLATION DESIGN DATA

Ceiling Height	Mounting Height	Recommended Spacing	Area Per Outlet (Sq. Ft.)	Room Proportions	Approximate Average Footcandles — White Lamps* With Louver	With Clear Ribbed Glass	With Decorated Ribbed Glass
10′	8′	6′ x 8′	48	Favorable	62	57	55
				Average	55	50	48
				Unfavorable	42	37	35
11′	8′9″	7′6″ x 8′6″	64	Favorable	46	43	41
				Average	41	37	36
				Unfavorable	32	28	27
12′	9′	9′ x 9′ or 8′ x 10′	80	Favorable	37	34	33
				Average	33	30	29
				Unfavorable	25	22	21
13′	10′	10′ x 10′ or 9′ x 11′	100	Favorable	30	28	26
				Average	26	24	23
				Unfavorable	20	18	17
14′	10′6″	11′ x 11′ or 10′ x 12′	120	Favorable	25	23	22
				Average	22	20	19
				Unfavorable	17	15	14
15′	11′6″	12′ x 12′	144	Favorable	21	19	18
				Average	18	17	16
				Unfavorable	14	12	12
16′	12′6″	13′ x 13′	169	Favorable	18	16	15
				Average	15	14	14
				Unfavorable	12	11	10

ROOM PROPORTIONS— Use **Favorable** when room width equals four times **ceiling height.**
Use **Average** when room width equals two times **ceiling height.**
Use **Unfavorable** when room width is equal to **ceiling height.**

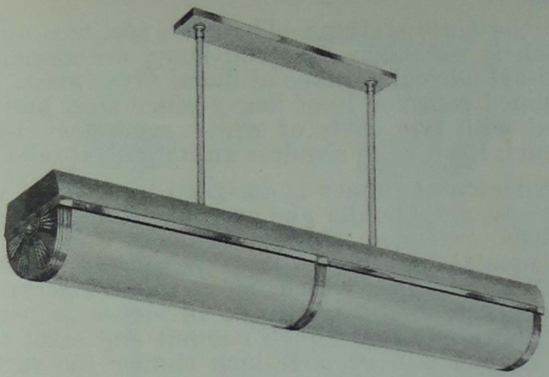
Footcandle values are calculated on the basis of recommended reflection factors of ceilings and walls, and include allowance for normal depreciation.

*When used with daylight fluorescent Mazda lamps, multiply values by .85.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

TYPE CL-110 FLUORESCENT LUMINAIRES

Three-Lamp, Direct-Indirect



Westinghouse Type CL-110 Fluorescent Luminaires are suitable for general commercial applications such as stores, offices and public buildings and are available in two types—suspension and ceiling. The suspension type uses two 40-watt, 48-inch lamps for direct illumination and one 30-watt, 36-inch lamp for indirect illumination. The ceiling type uses only two 40-watt, 48-inch lamps for direct illumination.

Construction

The fixture body has all steel, semi-cylindrical metal frame with decorative die cast ends and center section. Two semi-cylindrical sections of Alvax glass are supported by this frame to diffuse the light. The entire under section hinges down to facilitate re-lamping. The unit is available for ceiling or suspension mounting, with or without glass. In the ceiling type, the upper reflector and lamp are replaced by a ceiling plate arrangement.

Lamp holder is sturdy Bakelite straight-push contacting type. Lamp starter consists of standard FS-4 starter switch with condenser to minimize radio interference. Starters are enclosed in aluminum containers with bayonet contacts and are easily accessible for replacement.

Ballast equipment consists of standard current limiting devices. Twin ballast with compensators provide high power factor of 90%–99%, minimize cyclic flicker and assure satisfactory lamp life.

Suspension units are arranged for single point suspension. Ceiling units are arranged for mounting on a single ⅜-inch stud in the outlet box. Units are completely wired except line leads which are furnished for line connections in suspension units.

All exposed metal parts are finished with a special Pearlite baked Silver (Plastox) finish.

Units are approved by Underwriters' Laboratories Inc., and are so labeled.

TYPE CL-110 LUMINAIRES

			Lamps*			Dimensions in Inches			
						Fixture		Overall	
Cat. No.	Luminaire Type	Description	Watts	No.	Circuit Volts	Length	Width	Suspension Length	Price Each
1121289	CL-110	Suspension without Glass	30 40	1 2	110-125	49⅜	8¾	34¾	**$37.30**
1121290	CL-110	Suspension with Glass	30 40	1 2	110-125	49⅜	8¾	34¾	**46.20**
1121469	CL-110	Suspension without Glass	40	2	110-125	49⅜	8¾	34¾	**30.70**
1121470	CL-110	Suspension with Glass	40	2	110-125	49⅜	8¾	34¾	**38.00**
1121291	CL-110	Surface Mounting without Glass	40	2	110-125	49⅜	8¾	7¼	**28.25**
1121292	CL-110	Surface Mounting with Glass	40	2	110-125	49⅜	8¾	7¼	**37.55**
1121324	....	Glass Section	----	--	....	....	.....	....	**5.35**

*Lamps are not included with fixtures.

INSTALLATION DESIGN DATA FOR TYPE CL-110 LUMINAIRES

		Suspension Mounting Units					Ceiling Mounting Units			
					Footcandles*				Footcandles*	
Ceiling Height (Feet)	Room Proportions	Recom. Mtg. Ht.	Approx. Spacing	Area Per Outlet	With Glass	Without Glass	Approx. Spacing	Area Per Outlet	With Glass	Without Glass
8	Favorable	For ceilings under 10′, ceiling units should be used		......	----	----	6′ x 8′	48	39	44
	Average				----	----			36	41
	Unfavorable				----	----			30	34
9	Favorable	For ceilings under 10′, ceiling units should be used		......	----	----	7′ 6″ x 8′ 6″	64	29	33
	Average				----	----			27	31
	Unfavorable				----	----			22	26
10	Favorable	8′	6′ x 8′	48	46	53	9′ x 9′ or 8′ x 10′	80	23	26
	Average				43	48			21	25
	Unfavorable				35	39			18	21
11	Favorable	8′ 9″	7′ 6″ x 8′ 6″	64	36	39	10′ x 10′ or 9′ x 11′	100	19	21
	Average				32	36			17	20
	Unfavorable				26	29			14	17
12	Favorable	9′	9′ x 9′ or 8′ x 10′	80	28	32	11′ x 11′ or 10′ x 12′	120	----	----
	Average				26	29			----	----
	Unfavorable				21	23			----	----
13	Favorable	10′	10′ x 10′ or 9′ x 11′	100	23	25	....	......	----	----
	Average				21	23			----	----
	Unfavorable				17	19			----	----
14	Favorable	10′ 6″	11′ x 11′ or 10′ x 12′	120	19	21	....	......	----	----
	Average				17	19			----	----
	Unfavorable				14	16			----	----
15	Favorable	11′ 6″	12′ x 12′	144	----	----	....	......	----	----
	Average				----	----			----	----
	Unfavorable				----	----			----	----

*These values calculated on basis of white Mazda F lamps. When daylight Mazda F lamps are used, multiply values by .85.

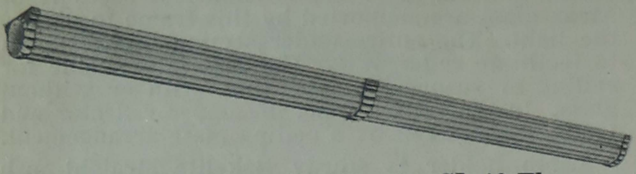
ROOM PROPORTIONS—Use **Favorable** when room width equals four times **mounting height**.
Use **Average** when room width equals two times **mounting height**.
Use **Unfavorable** when room width is equal to **mounting height**.

Footcandle Values are calculated on the basis of recommended reflection factors of ceiling and walls, and include allowance for normal depreciation.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

TYPE CL-40 AND 2-CL-40 FLUORESCENT LUMINAIRES

Surface Mounting



Westinghouse Types CL-40 and 2-CL-40 Fluorescent Surface Mounting Luminaires are essentially a direct method of illumination and are acceptable to various commercial interiors such as offices, stores, lobbies, etc., where efficient and modern lighting units are desired. They are designed for use with 40-watt, 48-inch fluorescent lamps only.

There are four classifications of the CL-40 Luminaires, various combinations of which may be used depending on the total strip length desired:

CL-40 — Single-lamp luminaire complete with high power factor ballast equipment; assembled complete.

2-CL-40 — Two-lamp luminaire complete with high power factor, two-lamp ballast equipment; assembled complete.

CL-40 — Single-lamp luminaire extension complete with high power factor ballast equipment; assembled complete. For use as continuous strip lighting.

2-CL-40 — Two-lamp luminaire extension complete with two-lamp high power factor ballast equipment; assembled complete. For use as continuous strip lighting.

The end caps and center connectors are attractively designed zinc alloy die castings which support the glass sections. The glass sections, one of which is necessary for each lamp, are elongated, semi-cylindrical sections of fluted Alvax glass. The v-shaped reflector is of heavy-gauge steel and finished with two coats of white, semi-gloss, baked enamel. Each lamp requires an individual reflector.

Ornamental runner is designed to act as a wire raceway, glass holder and complete support for the ballasts, reflector, starter switches, sockets and ornamental end caps. It is fabricated in three separate sections which are welded together to form a single, sturdy trough 48 inches in length. Six knockouts for ½-inch conduit and eight slots are provided in each 48-inch runner for surface mountings. Any length continuous run in multiples of four feet may be assembled by using one standard 2-CL-40 unit and the required number of CL extensions. Units are furnished assembled and wired complete.

All exposed metal parts are finished with a satin, bone-white, baked enamel.

Lamp starter consists of an aluminum container which fits a bayonet connection in the starter socket. The unit contains a glow switch and a condenser to minimize radio interference. It may be replaced as readily as the lamp itself.

Ballast equipment consists of standard high power-factor current-limiting devices, which are included with the fixtures.

Units are approved by Underwriters' Laboratories, Inc., and are so labeled.

Cat. No.	Luminaire Type	Description	Lamps* Watt	Lamps* No.	Circuit Volts	Dimens., Inches Lgth.	Dimens., Inches Wdth.	Dimens., Inches Dpth.	Price Each
1121300	CL-40	Single-Lamp Complete Unit	40	1	110–125	49½	$5\frac{9}{16}$	4½	**$19.55**
1121301	2-CL-40	Two-Lamp Complete Unit‡	40	2	110–125	97½	$5\frac{9}{16}$	4½	**35.55**
1121492	2-CL-40	Two-Lamp Complete Unit§	40	2	110–125	97½	$5\frac{9}{16}$	4½	**35.55**
1121312	CL-40 Extension	Single-Lamp Unit†	40	1	110–125	$48\frac{3}{16}$	$5\frac{9}{16}$	4½	**18.05**
1121460	2-CL-40 Extension	Two-Lamp Unit†§	40	2	110–125	$96\frac{5}{16}$	$5\frac{9}{16}$	4½	**33.75**
1121309	....	Glassware	----	--	....	--------	------	------	**7.55**

*Lamps are not included with fixtures. †Does not include end caps. ‡Furnished with 2 single-lamp ballast. §Furnished with 1 two-lamp ballast.

INSTALLATION DESIGN DATA FOR CL-40 LUMINAIRES

Spacing Between Strips (Feet)	Ceiling Height (1)	Area Per Lamp (Sq. Ft.) (2)	Room Proportions (3)	Av. Footcandles on Working Plane With White Lamps (4)
3	*	12	Favorable	75
			Average	63
			Unfavorable	47
3½	*	14	Favorable	64
			Average	54
			Unfavorable	40
4	*	16	Favorable	56
			Average	47
			Unfavorable	35
4½	*	18	Favorable	50
			Average	42
			Unfavorable	31
5	*	20	Favorable	45
			Average	38
			Unfavorable	28
5½	*	22	Favorable	41
			Average	34
			Unfavorable	26
6	*	24	Favorable	38
			Average	31
			Unfavorable	24

*Refer to notes in opposite column.

(1) **Ceiling Height** — CL-40 luminaires are recommended for ceilings of 8′-12′ in small rooms and 8′-16′ in large rooms to obtain high utilization lighting.

(2) **The Area Per Lamp** given is calculated on the assumption that luminaires will extend the full length of the room, that is from wall to wall. If strips are shorter than length of room, area per lamp will be increased and footcandles will be proportionately reduced.

(3) **Room Proportions:**

Use **favorable** when room width equals four or more times **ceiling height.**

Use **average** when room width equals two times **ceiling height.**

Use **unfavorable** when room width is equal to **ceiling height.**

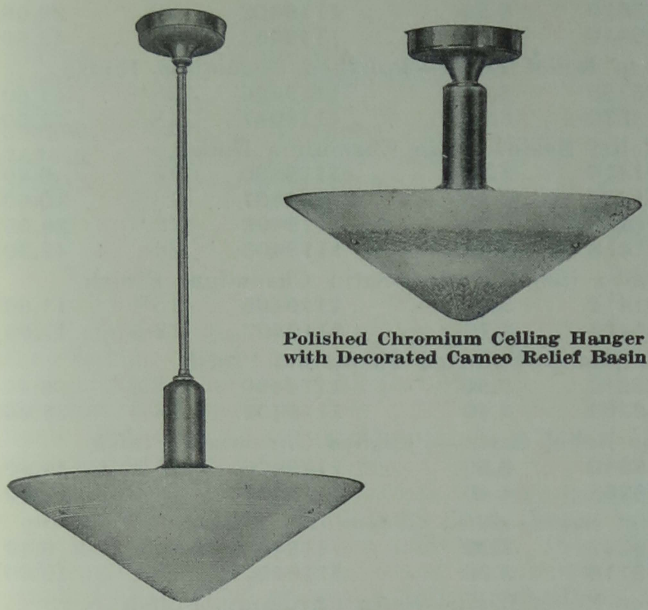
(4) **Footcandle Values** are calculated on the basis of recommended reflection factors of ceiling and walls, and include allowance for normal depreciation.

When used with daylight Mazda Fluorescent lamps, multiply footcandle values by .85.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

STANDARD MAGNALUX LUMINAIRES

For Indirect Lighting



Polished Chromium Ceiling Hanger with Decorated Cameo Relief Basin

Satin Chromium Semi-Rigid Hanger with Ring Relief Basin

Westinghouse Standard Magnalux Luminaires are luminous indirect lighting units suited for general commercial lighting installations such as shops, offices, banks, restaurants, schools and stores. Efficiency is well above 80%.

Complete units are furnished **unwired** but full length leads of proper size wire are supplied.

For the basins, patented low transmission, Hi-Flec glass provides high inside surface reflecting efficiency and low exterior surface brightness. Even surface brightness on the exterior attained by selected increase of glass basin thickness in zone of lamp filament. On Decorated Cameo Relief Basins brown tint is etched and fired for permanence.

Reflector basin is suspended from hanger on three steel rods. By disconnecting any one rod, basin may be readily cleaned or unit relamped.

Canopy is heavy gauge drawn brass supported by a knurled ring on swivel hickey.

Stem is one-piece seamless brass tubing forming swivel joint with swivel hickey. Socket end threaded ¼-inch I.P.S. Stem can easily be shortened.

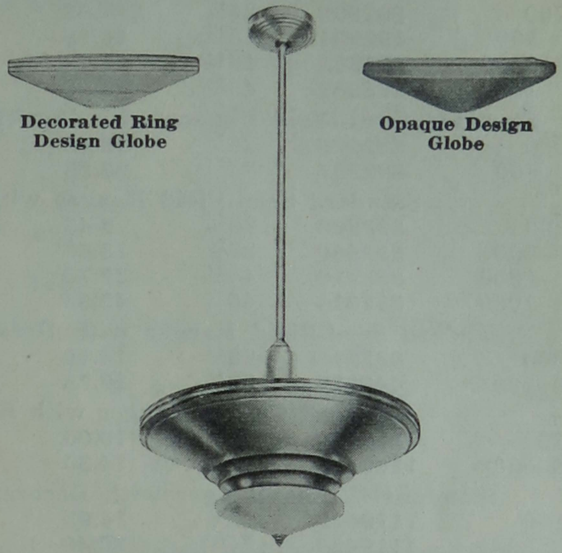
Accessories

Canopy Switches—Canopies are furnished with knockouts for Levolier No. 1010 flat type canopy switch—furnished installed at **$2.45** each additional or not installed at **$1.55** each additional.

Three-Lite Sockets—Mogul Sockets for three-lite lamps will be furnished on all mogul units at **$1.00** additional.

SILVURN LUMINAIRES

For Indirect Lighting



Decorated Ring Design Globe

Opaque Design Globe

Silvurn Luminaire with Standard White Outer Globe

Westinghouse Silvurn Luminaires are indirect lighting units suitable for general commercial lighting installations such as offices, shops, schools, stores and restaurants. They are available in 300-500-watt and 750-1000-watt sizes.

Construction

The canopy is drawn aluminum. Stem is one-piece, seamless aluminum tubing fastened to hickey by swivel joint. Husk is drawn aluminum supported by socket cap and secured by knurled husk nut. Basin is spun aluminum. Socket is a mogul porcelain one-piece easy-to-wire type. Complete units are furnished **unwired,** but full length leads of No. 14 AF standard wire are supplied.

Translux reflecting disc is heavy pressed Monax glass with concentric prisms. It gives high reflectivity, and evenly distributes light over outer globe.

Outer globe of diffusing glass is avaiable in plain or ring design or with an opaque aluminum coating. A soft lustre is cast over the basin exterior by the light from the globe.

Exterior surface of the basin is satin finish with highly polished band; the interior or reflecting surface is matte finish. Both inside and outside surfaces are finished by the Alzak Process so that reflecting surface will not tarnish and may be cleaned easily.

The basin assembly is suspended from hanger by three steel rods. By disengaging any one rod, the basin may be readily cleaned, or the unit relamped.

The entire unit is approved by the National Board of Fire Underwriters.

Accessories

Canopy Switches—Canopies are furnished with knockouts for Levolier No. 1010 flat-type canopy switches, furnished installed at **$2.45** each additional, or not installed at **$1.55** each additional.

Three-Lite Sockets—Mogul sockets for three-lite lamps will be furnished at **$1.00** each additional. Both canopy switch and three-lite socket will be furnished at **$2.30** additional.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

STANDARD MAGNALUX LUMINAIRES FOR INDIRECT LIGHTING

	Complete Unit			Hanger Only		Basin Only		
Wattage	Cat. No.	Length Inches	Price Each*	Cat. No.	Price Each	Cat. No.	Diam. Inches	Price Each
Standard Semi-Rigid Hanger with Ring Relief Basin—Polished Chromium Finish								
200	892900	26¼	$11.55	785182	$5.75	1119400	15½	$6.40
300–500	892901	33¼	16.15	788230	6.35	1119401	18 7/16	10.60
750–1000	892902	46¼	35.75	785810	8.50	1119402	22	29.05
750–1000	892903	46¼	48.60	785810	8.50	1119403	24	42.50
Standard Semi-Rigid Hanger with Decorated Cameo Relief Basin—Polished Chromium Finish								
200	892906	26¼	16.50	785182	5.75	1119406	15½	11.60
300–500	892907	33¼	22.25	788230	6.35	1119047	18 7/16	17.00
Standard Semi-Rigid Hanger with Ring Relief Basin—Satin Chromium Finish								
200	892908	26¼	9.45	891416	3.50	1119400	15½	6.40
300–500	892909	33¼	13.65	891417	3.75	1119401	18 7/16	10.60
750–1000	892910	46¼	32.70	891418	5.30	1119402	22	29.05
750–1000	892911	46¼	45.55	891418	5.30	1119403	24	42.50
Standard Semi-Rigid Hanger with Decorated Cameo Relief Basin—Satin Chromium Finish								
200	892914	26¼	14.40	891416	3.50	1119406	15½	11.60
300–500	892915	33¼	19.75	891417	3.75	1119407	18 7/16	17.00
Standard Ceiling Hanger with Ring Relief Basin—Polished Chromium Finish								
200	1119421	12⅝	10.00	785810	8.50	1119400	15½	6.40
300–500	1119422	14⅜	14.30	788283	4.40	1119402	18 7/16	29.05
Standard Ceiling Hanger with Decorated Cameo Relief Basin—Polished Chromium Finish								
200	1119425	12⅝	14.95	785810	8.50	1119406	15½	11.60
300–500	1119426	14⅜	20.40	788283	4.40	1119407	18 7/16	17.00
Standard Ceiling Hanger with Ring Relief Basin—Satin Chromium Finish								
200	1119427	12⅝	8.85	1119717	2.90	1119400	15½	6.40
300–500	1119428	14⅜	13.15	1119718	3.20	1119401	18 7/16	10.60
Standard Ceiling Hanger with Decorated Cameo Relief Basin—Satin Chromium Finish								
200	1119431	12⅝	13.80	1119717	2.90	1119406	15½	11.60
300–500	1119432	14⅜	19.25	1119718	3.20	1119407	18 7/16	17.00

*In quantities of 10 or less—Units shorter than standard will be furnished at a fixed charge of **$0.55** per unit extra regardless of length. Units longer than standard will be supplied at a fixed charge of **$0.55** per unit plus **$0.10** per inch additional. This applies to total quantity of each catalog number regardless of length or separate order items. In quantities of 11 or more—Units shorter than standard will be furnished at standard price—Units longer than standard at **$0.10** per inch additional.

INSTALLATION DESIGN DATA FOR STANDARD MAGNALUX LUMINAIRES

					AVERAGE FOOTCANDLES				
Ceiling Height (Feet)	Recom- Mtg. Ht. (Feet)	Approx. Spacing (Feet)	Area per Outlet (Sq. Ft.)	Conditions Factor	200 Watts	300 Watts	500 Watts	750 Watts	1000 Watts
8′ 6″	7′ 4″	7x7	45–56	Favorable	19–23	30–37			
				Average	14–17	23–28			
				Unfavorable	10–12	15–19			
9′	7′ 10″	8x8	56–72	Favorable	15–19	23–30	40–52		
				Average	11–14	18–23	31–40		
				Unfavorable	7.6–10	12–15	21–27		
9′ 6″	7′ 6″	9x9	72–90	Favorable	12–15	19–23	32–40		
				Average	9–11	14–18	25–31		
				Unfavorable	6–7.6	10–12	17–21		
10′	7′ 9″	10x10	90–110	Favorable	10–12	15–19	26–32	38–47	53–65
				Average	7–9	12–14	20–25	29–35	40–51
				Unfavorable	5–6	8–10	14–17	20–24	27–33
11′	8′ 3″	11x11	110–132	Favorable	8–10	13–15	22–26	32–38	43.4–53
				Average	6–7	10–12	17–20	24–29	33.5–40
				Unfavorable	4–5	6.5–8	11–14	16.5–20	23–27
12′	9′ 3″	12x12	132–156	Favorable	7–8	11–13	19–22	27–32	37–43
				Average	5–6	8–10	14–17	20.5–24	28–33.5
				Unfavorable	3.5–4	5.5–6.5	10–11	14–16.5	19–23
13′	10′ 3″	13x13	156–182	Favorable	5.8–7	9–11	16–19	23–27	32–37
				Average	4.3–5	7–8	12–14	17.5–20.5	24–28
				Unfavorable	3–3.5	4.7–5.5	8–10	12–14	16.5–19
14′	10′ 6″	14x14	182–226	Favorable	4.7–5.8	7–9	13–16	19–23	26–32
				Average	3.5–4.3	5.6–7	10–12	14–17.5	19.5–24
				Unfavorable	2.4–3	3.8–4.7	6.8–8	10–12	13–16.5
15′ 6″	11′ 8″	16x16	226–295	Favorable	3.6–4.7	6–7	10–13	14–19	20–26
				Average	2.6–3.5	4.3–5.6	7.5–10	11–14	15–19.5
				Unfavorable	1.8–2.4	3–3.8	5.1–6.8	17.5–10	10–13
17′	13′ 2″	18x18	295–367	Favorable	2.9–3.6	5–6	8–10	11.5–14	16–20
				Average	2.1–2.6	3.5–4.3	6–7.5	9–11	12–15
				Unfavorable		2.4–3	4.1–5.1	6–7.5	8–10

Mounting height is the distance from the floor to the bottom of the basin. **CONDITIONS FACTOR**—Use **Favorable** when room width equals four times **ceiling height**. Use **Average** when room width equals two times **ceiling height**. Use **Unfavorable** when room width is equal to **ceiling height**.

Footcandle values are calculated on the basis of recommended reflection factors of ceiling and walls, and to include normal depreciation. If walls and ceiling have lower reflection factors than recommended, the next larger size lamp should be used. Indirect lighting is not practical where ceiling is dark.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

SILVURN LUMINAIRES

For Indirect Lighting

SILVURN COMPLETE UNITS

Cat. No.	Description	For Lamp Size Watts*	Approximate Over-all Length Inches†	Basin Diameter Inches	Price Each†
888388	With White Globe	300–500	39¼	18	**$12.45**
889010	With Ring Design Globe	300–500	39¼	18	**13.00**
889011	With Opaque Globe	300–500	39¼	18	**13.00**
888800	With White Globe	750–1000	48⅞	22	**18.70**
889012	With Ring Design Globe	750–1000	48⅞	22	**19.75**
889013	With Opaque Globe	750–1000	48⅞	22	**19.75**

REPLACEMENT PARTS

Description	For 300-500 Watt Luminaires		For 750-1000 W. Luminaires	
	Cat. No.	Price Each	Cat. No.	Price Each
Plain Outer Globe, only	**888237**	**$1.40**	**789998**	**$2.15**
Ring Design Outer Globe, only	**889014**	**1.95**	**889016**	**3.20**
Opaque Aluminum Outer Globe, only	**889015**	**1.95**	**889017**	**3.20**
Translux Bottom Plate, only	**789999**	**1.00**	**789999**	**1.00**
Basin Rod, only (3 required)	**888280**	**.10**	**888396**	**.10**

*Use inside frosted lamps only.

†In quantities of 10 or less—Units shorter than standard will be furnished at a fixed charge of **$0.55** per unit extra regardless of length. Units longer than standard will be supplied at a fixed charge of **$0.55** per unit plus **$0.10** per inch additional. This applies to total quantity of each catalog number regardless of length or separate order items. In quantites of 11 or more—Units shorter than standard will be furnished at standard price and units longer than standard at **$0.10** per inch additional.

INSTALLATION DESIGN DATA FOR SILVURN LUMINAIRES

Ceiling Height (Feet)	Recommended Mtg. Ht. (Feet)	Approx. Spacing (Feet)	Area per Outlet (Sq. Ft.)	Conditions Factor	AVERAGE FOOTCANDLES			
					300 Watts	500 Watts	750 Watts	1000 Watts
8′ 6″	Not Recommended for Ceilings less than 9′ 6″	7x7	45–56	Favorable	28–35			
				Average	22–28			
				Unfavorable	14–18			
9′		8x8	56–72	Favorable	22–28	40–50	57–73	
				Average	17–22	31–40	44–57	
				Unfavorable	11–14	20–25	28–36	
9′ 6″	7′ 3″	9x9	72–90	Favorable	18–22	31–40	45–57	63–78
				Average	14–17	25–31	35–44	49–61
				Unfavorable	9–11	16–20	23–28	31–39
10′	7′ 6″	10x10	90–110	Favorable	14–18	25–31	37–45	51–63
				Average	11–14	20–25	29–35	40–49
				Unfavorable	7–9	13–16	18.5–23	25–31
11′	7′ 9″	11x11	110–132	Favorable	12–14	21–25	31–37	43–51
				Average	9–11	17–20	24–29	33–40
				Unfavorable	6–7	11–13	15.5–18.5	21–25
12′	8′ 9″	12x12	132–156	Favorable	10–12	18–21	26–31	36–43
				Average	8–9	14–17	20–24	28–33
				Unfavorable	5–6	9–11	13–15.5	18–21
13′	9′ 9″	13x13	156–182	Favorable	9–10	15–18	22–26	31–36
				Average	7–8	12–14	18–20	24–28
				Unfavorable	4–5	8–9	11–13	15–18
14′	10′–11′	14x14	182–226	Favorable	7–9	12–15	18–22	25–31
				Average	5.5–7	10–12	14–18	20–24
				Unfavorable	3.5–4	6–8	9–11	12–15
15′ 6″	11′–12′	16x16	226–295	Favorable	5–7	9–12	14–18	19–25
				Average	4.5–5.5	7.5–10	11–14	15–20
				Unfavorable	2.5–3.5	5–6	7–9	9.5–12
17′	13′–14′ 6″	18x18	295–367	Favorable	4–5	8–9	11–14	15–19
				Average	3.5–4.5	6–7.5	9–11	12–15
				Unfavorable	2–2.5	4–5	5.5–7	8–9.5

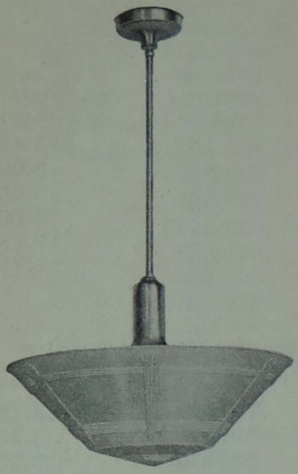
CONDITIONS FACTOR—Use **Favorable** when room width equals four times **ceiling height.**
Use **Average** when room width equals two times **ceiling height.**
Use **Unfavorable** when room width is equal to **ceiling height.**

Footcandle values are calculated on the basis of recommended reflection factors of ceiling and walls, and to include normal depreciation. If walls and ceiling have lower reflection factors than recommended, the next larger size lamp should be used. Indirect lighting is not practical where ceiling is dark.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

TYPE PL-500 LUMINAIRES

For Indirect Lighting



PL-500 Luminaire

Westinghouse Standard PL-500 Luminaires are luminous indirect lighting units suited for general commercial lighting installations such as in schools, offices, banks, restaurants, and stores.

PL-500 Luminaires are available in 300-500-watt sizes only.

Construction

Canopy is of drawn brass, supported by a knurled ring on swivel hickey. Both canopy and ring slip down over stem for free access when wiring. Stem is one-piece, seamless brass tubing forming swivel joint with the swivel hickey. Socket end threaded ¼-inch I.P.S. Stem can be easily shortened. Husk of drawn brass is slightly flared at bottom to intercept a minimum of light. Three bayonet slots provide for basin rod supports.

Porcelain one-piece easy-to-wire socket with all metal parts nickel plated except the polarized brass terminal. Socket cap attaches to stem.

Complete units furnished unwired but full length leads of proper size wire are supplied.

Basin is made of translucent colorless ureaformaldehyde molded plastic material into which a coloring pigment has been added to bring out a pleasing soft ivory hue. The reflecting surface is smooth and polished, which assures a high reflection factor. The basin has an attractive exterior pattern and is so positioned in relation to the light source that the temperature rise on any part cannot exceed safe operating conditions.

The reflector basin is suspended from the hanger on three steel rods. By disconnecting any one rod, basin may be readily cleaned or unit relamped. The hanger is finished in satin chromium.

Each clevis pin has two holes for the basin rod, thus permitting two positions of basin with relation to husk. Complete instructions are packed with each unit.

Accessories

Canopy Switches—Canopies are furnished with knockouts for Levolier No. 1010 flat type canopy switch, which may be furnished installed at **$2.45** each additional or not installed at **$1.55** each additional.

Shield Ring—A diffused Alzak process shield ring, No. 1121378 at **$0.75**, is available for reducing the angle of cutoff to zero degrees. This is not included with the unit unless specified.

Three-Lite Sockets—Mogul sockets for three-lite lamps will be furnished on all mogul units at **$1.00** additional.

Cat. No.	Luminaire Type	For Lamp Size Watts	Approx. Overall Length, Inches	Basin Diam., Inches	Price* Each
1121377	PL-500	300-500	35⅛	20⅞	**$11.25**

*In quantities of 10 or less—Units shorter than standard will be furnished at a fixed charge of **$0.55** per unit extra regardless of length. Units longer than standard will be supplied at a fixed charge of **$0.55** per unit plus **$0.10** per inch additional. This applies to total quantity of each catalog number regardless of length or separate order items. In quantities of 11 or more — Units shorter than standard will be furnished at standard prices — Units longer than standard at **$0.10** per inch additional.

INSTALLATION DESIGN DATA FOR PL-500 LUMINAIRES

Ceiling Height (Feet)	Recom. Mtg. Ht.† (Feet)	Approx. Spacing (Feet)	Area Per Outlet (Sq. Ft.)	Room Proportions‡	Average Footcandles§	
					300 Watts	500 Watts
9′	7′10″	8 x 8	64	Favorable	28	48
				Average	24	42
				Unfavorable	18	31
9′6″	7′6″	9 x 9	81	Favorable	22	39
				Average	19	33
				Unfavorable	14	25
10′	7′9″	10 x 10	100	Favorable	18	31
				Average	16	27
				Unfavorable	12	20
11′	8′1″	11 x 11	121	Favorable	15	26
				Average	13	22
				Unfavorable	10	17
12′	9′1″	12 x 12	144	Favorable	12	22
				Average	11	19
				Unfavorable	8	14
13′	10′1″	13 x 13	169	Favorable	10	18
				Average	9	16
				Unfavorable	7	12
14′	10′6″	14 x 14	196	Favorable	9	16
				Average	8	14
				Unfavorable	6	10
15′6″	11′8″	16 x 16	256	Favorable	7	12
				Average	6	11
				Unfavorable	5	8

†Mounting Height is the distance from the floor to the bottom of the basin.

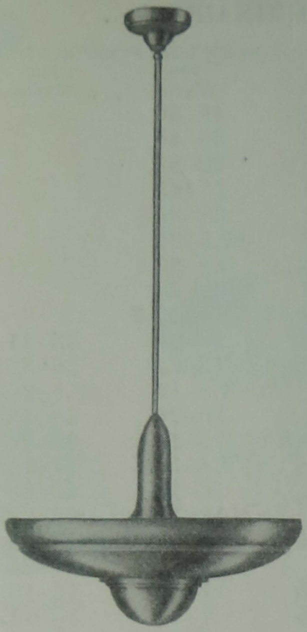
‡**ROOM PROPORTIONS**—Use **Favorable** when room width equals four times **ceiling height**.
Use **Average** when room width equals two times **ceiling height**.
Use **Unfavorable** when room width is equal to **ceiling height**.

§**Footcandle values** are calculated on the basis of recommended reflection factors of ceiling and walls, and to include normal depreciation. If walls and ceiling have lower reflection factors than recommended, the next larger lamp should be used. Indirect lighting is not practical where ceiling is dark.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

TYPE TI LUMINAIRES

For Indirect Lighting



TI-500 Luminaire

Westinghouse TI Luminaires are totally indirect lighting units of modern appearance, design and performance. They provide efficient, glare-free, well-distributed illumination for all general commercial applications.

A distinctive feature of this luminaire is its threadless hanger stem which provides a means to shorten quickly the hanger lengths as required by varying installation conditions. Complete units are furnished **unwired**, but full length leads of No. 14 stranded fixture wire are supplied.

The hanger and basin are treated by the Alzak Process so that the reflecting surface will not tarnish and may be cleaned easily.

The canopy is spun aluminum. It is supported by a knurled ring on the swivel hickey.

The stem is one-piece seamless aluminum tubing forming a swivel joint at the canopy.

The basin is suspended from the hanger on three steel rods spaced 120° apart. Basin lugs to which the rods are attached, are part of the basin itself, thus no rivets or other device break the smooth outer basin surface.

The entire unit is approved by the National Board of Fire Underwriters.

Accessories

Canopy Switches—Canopies are furnished with knockouts for Levolier No. 1010 switches, which may be furnished installed at **$2.45** each additional, or not installed at **$1.55** each additional.

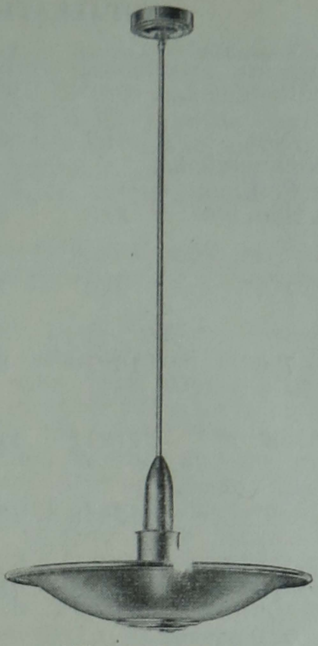
Three-Lite Sockets—Mogul sockets for two-filament lamps may be obtained at **$1.00** each additional. Both canopy switch and three-lite socket will be furnished at **$2.30** additional.

TYPE TI LUMINAIRE COMPLETE UNIT

Cat. No.	Style No.	For Lamp* Size Watts	Approx.† Over-all Length Inches	Basin Diam. Inches	Price Each†
891000	TI-500	300-500	37 5/16	18⅜	$11.75
891001	TI-1000	750-1000	45⅜	21⅞	17.65

TYPE MB LUMINAIRES

For Indirect Lighting



MB-1000 Luminaire

Westinghouse MB Luminaires are totally indirect aluminum lighting units designed specifically for use with incandescent medium Bipost lamps.

The characteristic asymmetric spread distribution of light from the Bipost lamp is utilized to full advantage by special reflector-basin design so that all MB Luminaires are equally effective for low ceiling heights, as well as for general commercial lighting applications.

Complete units are furnished **unwired**, but full length leads of No. 14 stranded nickel wire with asbestos insulation are supplied. The stem is closed at the socket end by a lava plug inserted between the wires.

The basin assembly consists of two parts: an outer reflector and an inner reflector, both spun from aluminum, with semi-diffuse reflecting surface. The hanger is satin aluminum finish, with polished husk. The basin rim and bottom center rings have a high polish finish, and the surface in between is an attractive brush finish. The basin is finished by the Alzak Process.

Canopy is drawn aluminum. It is supported by a knurled ring on the swivel hickey. The stem is one-piece aluminum tubing forming a swivel at the canopy.

Unit is approved by the National Board of Fire Underwriters.

Accessories

Canopy Switches—Canopies are furnished with knockouts for Levolier No. 1010 switches, which may be furnished installed at **$2.45** each additional, or not installed at **$1.55** each additional.

TYPE MB LUMINAIRE COMPLETE UNIT

Cat. No.	Style No.	For Lamp* Size Watts	Approx.† Over-all Length Inches	Basin Diam. Inches	Price Each†
892515	MB-500	300-500	33	19¼	**$16.85**
892516	MB-1000	750-1000	46	22¾	**23.30**

*Use inside frosted lamp only.

†In quantities of 10 or less—Units shorter than standard will be furnished at a fixed charge of **$0.55** per unit regardless of length. Units longer than standard will be supplied at a fixed charge of **$0.55** per unit plus **$0.10** per inch additional. This applies to total quantity of each catalog number regardless of length or separate order items. In quantities of 11 or more—Units shorter than standard will be furnished at standard price and Units longer than standard at **$0.10** per inch additional.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

TYPES TI AND MB LUMINAIRES FOR INDIRECT LIGHTING

INSTALLATION DESIGN DATA FOR TI LUMINAIRES

Ceiling Height (Feet)	Recommended Mtg. Ht. (Feet)	Approx. Spacing (Feet)	Area per Outlet (Sq. Ft.)	Conditions Factor	AVERAGE FOOTCANDLES			
					300 Watts	500 Watts	750 Watts	1000 Watts
8′ 6″	Not Recommended for Ceilings less than 9′6″	7x7	45–56	Favorable	25–32	45–56		
				Average	21–26	36–45		
				Unfavorable	13–16	22–28		
9′		8x8	56–72	Favorable	20–25	35–45		
				Average	16–21	28–36		
				Unfavorable	10–13	17.5–22		
9′ 6″	7′ 3″	9x9	72–90	Favorable	16–20	28–35		
				Average	13–16	22–28		
				Unfavorable	8–10	14–17.5		
10′	7′ 6″	10x10	90–110	Favorable	13–16	23–28	33–41	46–55
				Average	10.5–13	18–22	26–32	37–45
				Unfavorable	6.5–8	4.5–14	16.5–20	23–28
11′	8′	11x11	110–132	Favorable	11–13	19–23	28–33	38–46
				Average	9–10.5	15–18	22–26	30–37
				Unfavorable	5.5–6.5	9.5–11.5	14–16.5	19–23
12′	9′	12x12	132–156	Favorable	9–11	16–19	23–28	32–38
				Average	7.5–9	13–15	18.5–22	26–30
				Unfavorable	4.5–5.5	8–9.5	11.5–14	16–19
13′	10′	13x13	156–182	Favorable	8–9	14–16	20–23	28–32
				Average	6.5–7.5	11–13	16–18.5	22–26
				Unfavorable	4–4.5	7–8	10–11.5	14–16
14′	10′–11′	14x14	182–226	Favorable	6.5–8	11–14	16–20	22–28
				Average	5–6.5	9–11	13–16	18–22
				Unfavorable	3–4	5.5–7	8–10	11–14
15′ 6″	11′–12′	16x16	226–295	Favorable	5–6.5	8.5–11	12.5–16	17–22
				Average	4–5	7–9	10–13	13.5–18
				Unfavorable	2.5–3	4–5.5	6–8	8.5–11
17′	13′–14′ 6″	18x18	295–367	Favorable	4–5	7–8.5	10–12.5	14–17
				Average	3–4	5.5–7	8–10	11–13.5
				Unfavorable	2–2.5	3.5–4	5–6	7–8.5

INSTALLATION DESIGN DATA FOR MB LUMINAIRES

8′ 6″	Not Recommended for Ceilings less than 9′ 6″	7x7	45–56	Favorable	28–35			
				Average	22–28			
				Unfavorable	14–18			
9′		8x8	56–72	Favorable	22–28	40–50	57–73	
				Average	17–22	31–40	44–57	
				Unfavorable	11–14	20–25	28–36	
9′ 6″	7′ 3″	9x9	72–90	Favorable	18–22	31–40	45–57	63–78
				Average	14–17	25–31	35–44	49–61
				Unfavorable	9–11	16–20	23–28	31–39
10′	7′ 6″	10x10	90–110	Favorable	14–18	25–31	37–45	51–63
				Average	11–14	20–25	29–35	40–49
				Unfavorable	7–9	13–16	18.5–23	25–31
11′	7′ 9″	11x11	110–132	Favorable	12–14	21–25	31–37	43–51
				Average	9–11	17–20	24–29	33–40
				Unfavorable	6–7	11–13	15.5–18.5	21–25
12′	8′ 9″	12x12	132–156	Favorable	10–12	18–21	26–31	36–43
				Average	8–9	14–17	20–24	28–33
				Unfavorable	5–6	9–11	13–15.5	18–21
13′	9′ 9″	13x13	156–182	Favorable	9–10	15–18	22–26	31–36
				Average	7–8	12–14	18–20	24–28
				Unfavorable	4–5	8–9	11–13	15–18
14′	10′–11′	14x14	182–226	Favorable	7–9	12–15	18–22	25–31
				Average	5.5–7	10–12	14–18	20–24
				Unfavorable	3.5–4	6–8	9–11	12–15
15′ 6″	11′–12′	16x16	226–295	Favorable	5–7	9–12	14–18	19–25
				Average	4.5–5.5	7.5–10	11–14	15–20
				Unfavorable	2.5–3.5	5–6	7–9	9.5–12
17′	13′–14′ 6″	18x18	295–367	Favorable	4–5	8–9	11–14	15–19
				Average	3.5–4.5	6–7.5	9–11	12–15
				Unfavorable	2–2.5	4–5	5.5–7	8–9.5

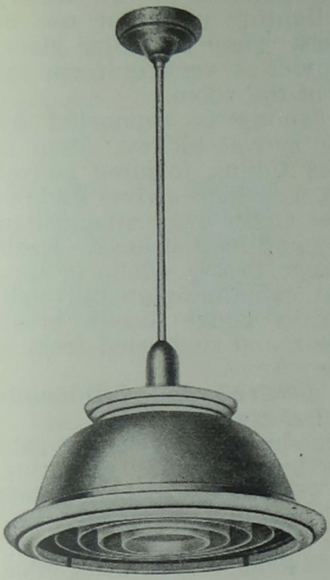
CONDITIONS FACTOR—Use **Favorable** when room width equals four times **ceiling height.**
Use **Average** when room width equals two times **ceiling height.**
Use **Unfavorable** when room width is equal to **ceiling height.**

Footcandle values are calculated on the basis recommended reflection factors of ceiling and walls, and to include normal depreciation. If walls and ceiling have lower reflection factors than recommended, the next larger size lamp should be used. Indirect lighting is not practical where ceiling is dark.

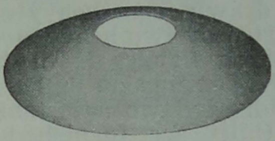
WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

STORLITE LUMINAIRES

For Semi-Indirect Lighting



Storlite Luminaire



Glass Diffusing Plate (Order as Cat. No. 892668—Price $1.00 each.)

Westinghouse Storlite Luminaires are direct-indirect units designed primarily for lighting store interiors. The unit directs maximum light on the merchandise and gives considerably higher intensities on the merchandise than conventional equipment. Sufficient light is directed upward to the ceiling to eliminate harsh contrasts in the store interior.

Complete units are furnished **unwired**, but full-length leads of No. 16 asbestos stranded fixture wire are supplied.

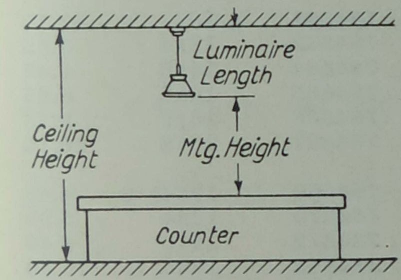
The direct-indirect basin reflector consists of two parts: an outer shell reflector spun from aluminum, and an inner reflector spun from Alclad aluminum. The reflecting surface is specular finish on the inner reflector and semi-specular on the outer. The outer and inner reflectors are assembled together and are provided with four louver supporting clips and three supporting rods. Shield ring is diffusing Monax glass with black ring decoration. Louver is zinc alloy die-cast frame and four circular louvers. Louver assembly is hinged to reflector. Hanger and reflector assembly have attractive satin aluminum finish. Reflector assembly is suspended from hanger on three steel rods spaced 120° apart. The shield ring rests on top of the outer reflector.

Accessories—Canopies are furnished with knockouts for Levolier No. 41 switch, which may be furnished installed at **$2.00** each additional and not installed at **$1.15** additional. The glass diffusing plate is recommended for more uniform ceiling illumination where hangers are shorter than standard length.

For Lamp Size Watts*	Cat. No.	Description	Approx. Over-all Length Inches†	Over-all Diam. Inches	Complete Price
200-300	**892849**	Complete Unit	31	18⅝	**$16.85**

*For 200-300 watt Medium Base, Inside Frosted Lamps with 6-inch light center length only.

†In quantities of 10 or less, units shorter than standard will be furnished at a fixed charge of $0.55 per unit extra regardless of length. Units longer than standard will be supplied at a fixed charge of $0.55 per unit plus $0.10 per inch additional. This applies to total quantity of each catalog number regardless of length or separate order items. In quantities of 11 or more, units shorter than standard will be furnished at standard price and units longer than standard at $0.10 per inch additional.



Use of Table

The "spacing" column in the Installation Data for Storlite Luminaires Table specifies the maximum recommended spacing for the mounting heights given.

The last two columns indicate the average illumination values for the respective spacings. If the spacing for a certain mounting height does not show sufficient illumination, choose a shorter spacing which will give the desired foot-candles.

Mounting height referred to in the Installation Data at the right, is the distance from the counter to the lower edge of the unit, as shown above.

INSTALLATION DESIGN DATA FOR STORLITE LUMINAIRE

Mounting Height	Approximate Spacing (Feet)	Area Per Outlet (Sq. Ft.)	Conditions Factor*	Average Footcandles 200 Watts	Average Footcandles 300 Watts†
6	8x8	56–72	Favorable	23–30	38–49
			Average	20–26	33–43
			Unfavorable	17–22	28–36
7	9x9	72–90	Favorable	19–23	31–38
			Average	16–20	26–33
			Unfavorable	14–17	23–28
8	10x10	90–110	Favorable	15–19	25–31
			Average	13–16	22–26
			Unfavorable	11–14	19–23
9	11x11	110–132	Favorable	13–15	21–25
			Average	11–13	18–22
			Unfavorable	9–11	16–19
9½	12x12	132–156	Favorable	11–13	18–21
			Average	9–11	15–18
			Unfavorable	8–9	13–16
10	13x13	156–183	Favorable	9–11	15–18
			Average	8–9	13–15
			Unfavorable	7–8	11–13
11	14x14	183–202	Favorable	8–9	13–15
			Average	7–8	12–13
			Unfavorable	6–7	10–11

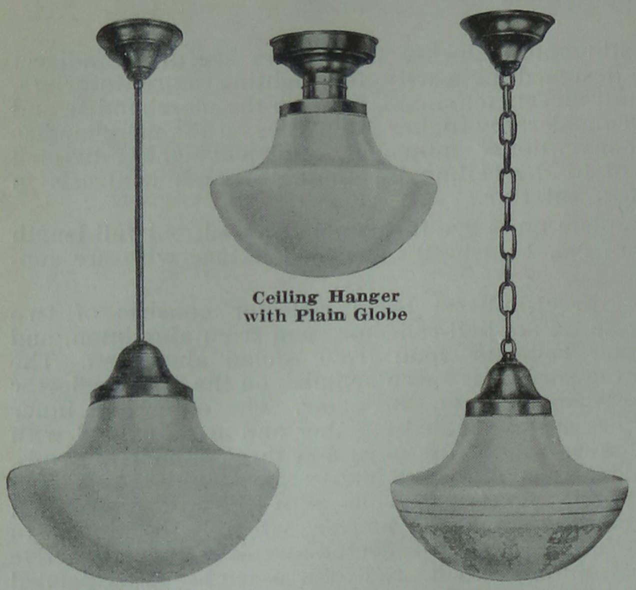
†Medium screw-base.

CONDITIONS FACTOR—Use **Favorable** when room width equals four times **mounting height**.
Use **Average** when room width equals two times **mounting height**.
Use **Unfavorable** when room width is equal to **mounting height**.

Footcandle values are calculated on the basis of recommended reflector factors of ceiling and walls, and to include normal depreciation. If walls and ceiling have lower reflection factors than recommended, the next larger size lamp should be used.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

LUNAIRE LUMINAIRES FOR SEMI-INDIRECT LIGHTING


Ceiling Hanger with Plain Globe

Semi-Rigid Hanger with Plain Globe

Chain Hanger with Decorated Globe

Westinghouse Lunaire Luminaires are totally enclosed, semi-indirect lighting units for use in schools, offices and stores. They minimize glare, soften shadows and provide a very uniform intensity of light throughout the room.

Heavy gauge brass canopy is supported by knurled ring on loop or swivel hickey. Stem is one-piece, seamless brass tubing forming swivel joint at the canopy with a ⅜-inch swivel hickey. Chain made of nine steel chain links attached to loop hickey at the canopy and loop at husk. Husk is drawn from heavy gauge brass. Globe is supported by two heavy steel, cadmium-plated prongs. Ceiling hanger is of heavy gauge drawn brass for mounting on outlet box and supported from a bridge by two adjustable screws.

Units are furnished **unwired**, but full-length leads of adequate size wire are supplied.

The globe is homogeneous dual density, patented glass. Lower portion is white reflecting surface, redirecting over 70% of the incident lamp light upward through a clear upper section without additional diffusion.

All Lunaire globes have flame-seared fitter edge to minimize chipping in service and to eliminate minute fissures which develop into destructive cracks.

All metal parts finished light statuary bronze. Special finishes can be furnished at special prices on request. All units are approved by the National Board of Fire Underwriters and so labeled. Accessories—Canopy Switches—Canopies are furnished with knockout for Levolier No. 41 canopy switch, which will be furnished installed at **$2.00** each additional, and not installed at **$1.15** each additional. Three-Lite Sockets—Mogul sockets for three-lite lamps will be furnished on all mogul units at **$1.00** additional. Both canopy switch and three-lite socket will be furnished at **$2.35** additional.

For Lamp Size Watts	Complete Unit			Hanger Only		Globe Only		
	Cat. No.	Approx.† Overall Length In.	Price Each†	Cat. No.	Price Each	Cat. No.	Diam. Inches	Price Each
			Semi-Rigid Hanger with Plain Globe*					
75–100	**890371**	30⅞	**$6.90**	**890384**	**$4.40**	**784861**	10x4	**$2.70**
150	**890372**	32¼	**7.75**	**890384**	**4.40**	**784862**	12x4	**3.55**
150–200	**890373**	34¼	**10.15**	**890385**	**4.95**	**784864**	14x6	**5.45**
300	**890374**	35⅜	**11.75**	**890386**	**5.15**	**784865**	16x6	**6.85**
300–500	**890375**	36	**14.65**	**890386**	**5.15**	**784866**	16x6	**9.75**
750–1000	**890376**	38¾	**27.75**	**890387**	**8.05**	**784867**	20x8	**20.10**
			Semi-Rigid Hanger with Decorated Globe*					
75–100	**890378**	30⅞	**8.65**	**890384**	**4.40**	**784869**	10x4	**4.45**
150	**890379**	32¼	**10.10**	**890384**	**4.40**	**784870**	12x4	**5.90**
150–200	**890380**	34¼	**13.10**	**890385**	**4.95**	**784872**	14x6	**8.40**
300	**890381**	35⅜	**15.30**	**890386**	**5.15**	**784873**	16x6	**10.40**
300–500	**890382**	36	**19.40**	**890386**	**5.15**	**784874**	18x6	**14.50**
750–1000	**890383**	38¾	**34.85**	**890387**	**8.05**	**784875**	20x8	**27.20**
			Chain Hanger with Plain Globe*					
75–100	**890339**	30⅞	**6.25**	**890352**	**3.75**	**784861**	10x4	**2.70**
150	**890340**	32¼	**7.10**	**890352**	**3.75**	**784862**	12x4	**3.55**
150–200	**890341**	34¼	**9.45**	**890353**	**4.20**	**784864**	14x6	**5.45**
300	**890342**	35⅜	**11.15**	**890354**	**4.50**	**784865**	16x6	**6.85**
300–500	**890343**	36	**14.05**	**890354**	**4.50**	**784866**	18x6	**9.75**
750–1000	**890344**	38¾	**26.75**	**890355**	**7.00**	**784867**	20x8	**20.10**
			Chain Hanger with Decorated Globe*					
75–100	**890346**	30⅞	**8.00**	**890352**	**3.75**	**784869**	10x4	**4.45**
150	**890347**	32¼	**9.45**	**890352**	**3.75**	**784870**	12x4	**5.90**
150–200	**890348**	34¼	**12.40**	**890353**	**4.20**	**784872**	14x6	**8.40**
300	**890349**	35⅜	**14.70**	**890354**	**4.50**	**784873**	16x6	**10.40**
300–500	**890350**	36	**18.80**	**890354**	**4.50**	**784874**	18x6	**14.50**
750–1000	**890351**	38¾	**33.85**	**890355**	**7.00**	**784875**	20x8	**27.20**

*Use inside frosted lamps only.

†In quantities of 10 or less, Chain and Semi-Rigid Units shorter than standard will be furnished at a fixed charge of **$0.55** per unit extra, regardless of length. Semi-Rigid Units longer than standard will be supplied at a fixed charge of **$0.55** each, plus **$0.10** per inch additional. Chain Units longer than standard will be supplied at a fixed charge of **$0.55** each, plus **$0.10** extra for each additional link, 7 links per foot. This applies to each catalog number regardless of separate order items. In quantities of 11 or more, fixed charges above are omitted and charge for extra length remains the same.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

LUNAIRE LUMINAIRES FOR SEMI-INDIRECT LIGHTING

	Complete Unit			Hanger Only		Globe Only		
For Lamp Size Watts	Cat. No.	Approx. Over-all Length Inches	Price Each	Cat. No.	Price Each	Cat. No.	Diam. Inches	Price Each
Ceiling Hanger with Plain Globe*								
75–100	**890307**	11¾	**$5.35**	**890320**	**$2.80**	**784861**	10x4	**$2.70**
150	**890308**	13⅛	**6.20**	**890320**	**2.80**	**784862**	12x4	**3.55**
150–200	**890309**	14¾	**8.65**	**890321**	**3.35**	**784864**	14x6	**5.45**
300	**890310**	15⅞	**10.45**	**890322**	**3.80**	**784865**	16x6	**6.85**
300–500	**890311**	16½	**13.35**	**890322**	**3.80**	**784866**	18x6	**9.75**
750–1000	**890312**	19⅛	**26.15**	**890323**	**6.35**	**784867**	20x8	**20.10**
Ceiling Hanger with Decorated Globe*								
75–100	**890314**	11¾	**7.10**	**890320**	**2.80**	**784869**	10x4	**4.45**
150	**890315**	13⅛	**8.55**	**890320**	**2.80**	**784870**	12x4	**5.90**
150–200	**890316**	14¾	**11.60**	**890321**	**3.35**	**784872**	14x6	**8.40**
300	**890317**	15⅞	**14.00**	**890322**	**3.80**	**784873**	16x6	**10.40**
300–500	**890318**	16½	**18.10**	**890322**	**3.80**	**784874**	18x6	**14.50**
750–1000	**890319**	19⅛	**33.25**	**890323**	**6.35**	**784875**	20x8	**27.20**

*Use **inside frosted lamps only.**

INSTALLATION DESIGN DATA FOR LUNAIRE LUMINAIRES

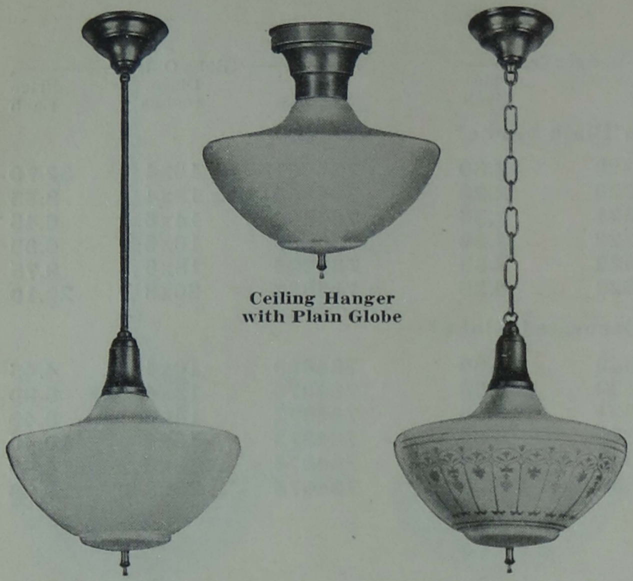
Ceiling Height (Feet)	Recom. Mtg.Ht. (Feet)	Approx. Spacing (Feet)	Area per Outlet (Sq. Ft.)	Conditions Factor	AVERAGE FOOTCANDLES						
					100 Watts	150 Watts	200 Watts	300 Watts	500 Watts	750 Watts	1000 Watts
8′ 6″	7′	7x7	45–56	Favorable	9.4–12	15–19	22–28	34–42			
				Average	7.3–9.1	12–15	17–21	27–33			
				Unfavorable	5.4–6.7	8.9–11	12–15	20–24			
9′	7′ 6″	8x8	56–72	Favorable	7.2–9.4	12–15	17–22	26–34			
				Average	5.7–7.3	9.4–12	13–17	21–27			
				Unfavorable	4.2–5.4	6.9–8.9	9.7–12	15–20			
10′	8′	9x9	72–90	Favorable	5.8–7.2	9.6–12	13–17	21–26	37–46		
				Average	4.6–5.7	7.5–9.4	11–13	17–21	29–36		
				Unfavorable	3.3–4.2	5.5–6.9	7.6–9.7	12–15	21–27		
11′	8′ 6″	10x10	90–110	Favorable	4.7–5.8	7.8–9.6	11–13	17–21	30–37	44–53	
				Average	3.7–4.6	6.2–7.5	8.5–11	14–17	24–29	34–42	
				Unfavorable	2.7–3.3	4.5–5.5	6.2–7.6	10–12	17–21	25–31	
12′ 6″	9′ 6″	11x11	110–132	Favorable	4.0–4.7	6.6–7.8	9.2–11	14–17	25–30	36–44	
				Average	3.0–3.7	5.1–6.2	7.1–8.5	11–14	20–24	29–34	
				Unfavorable	2.3–2.7	3.8–4.5	5.3–6.2	8.3–10	15–17	21–25	
14′	10′ 6″	12x12	132–156	Favorable		5.5–6.6	7.6–9.2	12–14	21–25	31–36	44–52
				Average		4.3–5.1	6.0–7.1	9.6–11	17–20	24–29	35–41
				Unfavorable		3.2–3.8	4.4–5.3	7.0–8.3	12–15	18–21	25–30
15′	11′ 6″	13x13	156–182	Favorable		4.7–5.5	6.7–7.6	10–12	18–21	26–31	38–44
				Average		3.7–4.3	5.3–6.0	8.2–9.6	15–17	21–24	30–35
				Unfavorable		2.7–3.2	3.7–4.4	6.0–7.0	10–12	15–18	22–25
16′	12′	14x14	182–226	Favorable			5.3–6.7	8.4–10	15–18	21–26	30–38
				Average			4.4–5.3	6.6–8.2	11–15	17–21	24–30
				Unfavorable			3.0–3.7	4.8–6.0	8.3–10	12–15	17–22
17′ 6″	13′	16x16	226–295	Favorable				6.4–8.4	11–15	16–21	23–30
				Average				5.0–6.6	8.9–11	13–17	18–24
				Unfavorable				3.7–4.8	6.4–8.3	9.4–12	13–12
19′	14′ 6″	18x18	295–364	Favorable				5.2–6.4	8.9–11	13–16	19–23
				Average				4.1–5.0	7.0–8.9	10–13	15–18
				Unfavorable				3.0–3.7	5.1–7.0	7.6–9.4	11–13

CONDITIONS FACTOR—Use **Favorable** when room width equals four times **ceiling height.**
Use **Average** when room width equals two times **ceiling height.**
Use **Unfavorable** when room width is equal to **ceiling height.**

Footcandle values are calculated on the basis of recommended reflection factors of ceiling and walls, and to include normal depreciation. If walls and ceiling have lower reflection factors than recommended, the next larger size lamp should be used. Indirect lighting is not practical where ceiling is dark.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

SOLLUX LUMINAIRES FOR DIRECT LIGHTING



Ceiling Hanger with Plain Globe

Semi-Rigid Hanger with Plain Globe

Chain Hanger with Decorated Globe

Westinghouse Sollux Luminaires are totally enclosed, general diffusing lighting units for use in stores, offices and schools. They provide the highest of footcandle intensities in relation to current consumption, and at the same time hold globe brightness to a minimum. A patented **tilt-out cap** in the bottom of the enclosing globe permits easy access to the inside for relamping and cleaning. Units are furnished **unwired,** but full-length leads of adequate size wire are supplied. Ceiling hangers furnished less wire.

Husk is drawn from heavy gauge brass. Globe is held by threaded keeper ring which permits use of small husk intercepting a minimum of upward light. Globe is homogeneous patented Monax glass. Metal parts finished light statuary bronze—special finishes at special prices on request.

All units are entirely approved by the National Board of Fire Underwriters.

Accessories

Canopy Switches — Canopies furnished with knockout for Levolier No. 41 canopy switch. Furnished installed, **$2.00** each, additional; not installed, **$1.15** each additional.

Three-Lite Sockets — Mogul sockets for three-lite lamps furnished on all mogul units at **$1.00** additional. Both canopy switch and three-lite socket will be furnished at **$2.35** additional.

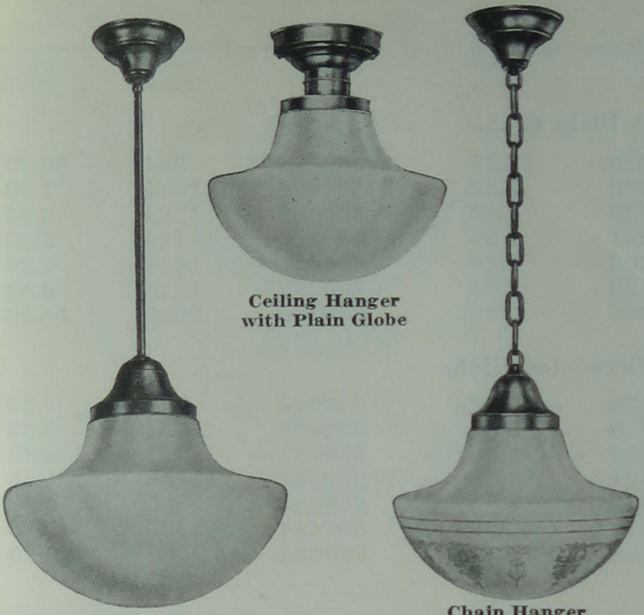
	Complete Unit			Hanger Only		Globe Only		
For Lamp Size Watts	Cat. No.	Approx.† Over-all Length Inches	Price Each†	Cat. No.	Price Each	Cat. No.	Diam. Inches	Price Each
			Semi-Rigid Hanger with Plain Globe					
75–100	**890204**	32⅛	**$7.65**	**890224**	**$4.85**	**785501**	10	**$3.05**
150	**890205**	33½	**9.00**	**890224**	**4.85**	**785502**	12	**4.40**
200	**890206**	34⅞	**9.95**	**890224**	**4.85**	**785503**	14	**5.35**
300	**890207**	37⅛	**12.30**	**890225**	**5.30**	**785504**	16	**7.25**
500	**890208**	38⅜	**15.45**	**890225**	**5.30**	**785505**	18	**10.40**
			Semi-Rigid Hanger with Decorated Globe					
75–100	**890209**	32⅛	**10.00**	**890224**	**4.85**	**785491**	10	**5.40**
150	**890210**	33½	**13.05**	**890224**	**4.85**	**785492**	12	**8.45**
200	**890211**	34⅞	**15.00**	**890224**	**4.85**	**785493**	14	**10.40**
300	**890212**	37⅛	**18.50**	**890225**	**5.30**	**785494**	16	**13.45**
500	**890213**	38⅜	**23.80**	**890225**	**5.30**	**785495**	18	**18.75**
			Chain Hanger with Plain Globe					
75–100	**890182**	32	**6.60**	**890202**	**3.75**	**785501**	10	**3.05**
150	**890183**	33⅜	**7.95**	**890202**	**3.75**	**785502**	12	**4.40**
200	**890184**	34¾	**8.90**	**890202**	**3.75**	**785503**	14	**5.35**
300	**890185**	37⅛	**11.55**	**890203**	**4.50**	**785504**	16	**7.25**
500	**890186**	33⅜	**14.70**	**890203**	**4.50**	**785505**	18	**10.40**
			Chain Hanger with Decorated Globe					
75–100	**890187**	32	**8.95**	**890202**	**3.75**	**785491**	10	**5.40**
150	**890188**	33⅜	**12.00**	**890202**	**3.75**	**785492**	12	**8.45**
200	**890189**	34¾	**13.95**	**890202**	**3.75**	**785493**	14	**10.40**
300	**890190**	37⅛	**17.75**	**890203**	**4.50**	**785494**	16	**13.45**
500	**890191**	38⅜	**23.05**	**890203**	**4.50**	**785495**	18	**18.75**
			Ceiling Hanger with Plain Globe					
75–100	**890160**	12⅜	**5.85**	**890180**	**2.95**	**785501**	10	**3.05**
150	**890161**	13¾	**7.20**	**890180**	**2.95**	**785502**	12	**4.40**
200	**890162**	15⅛	**8.15**	**890180**	**2.95**	**785503**	14	**5.35**
300	**890163**	16⅜	**10.50**	**890181**	**3.40**	**785504**	16	**7.25**
500	**890164**	17⅝	**13.65**	**890181**	**3.40**	**785505**	18	**10.40**
			Ceiling Hanger with Decorated Globe					
75–100	**890165**	12⅜	**8.20**	**890180**	**2.95**	**785491**	10	**5.40**
150	**890166**	13¾	**11.25**	**890180**	**2.95**	**785492**	12	**8.45**
200	**890167**	15⅛	**13.20**	**890180**	**2.95**	**785493**	14	**10.40**
300	**890168**	16⅜	**16.70**	**890181**	**3.40**	**785494**	16	**13.45**
500	**890169**	17⅝	**22.00**	**890181**	**3.40**	**785495**	18	**18.75**

†In quantities of 10 or less, Chain and Semi-Rigid Units shorter than standard will be furnished at a fixed charge of **$0.55** per unit extra, regardless of length. Semi-Rigid Units longer than standard will be supplied at a fixed charge of **$0.55** each, plus **$0.10** per inch additional. Chain Units longer than standard will be supplied at a fixed charge of **$0.55** each, plus **$0.10** extra for each additional chain link, 7 links per foot. This applies to each catalog number regardless of separate order items. In quantities of 11 or more, fixed charges above are omitted and charge for extra lengths remains the same.

For installation design data, see SOLLAIRE listing.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

SOLLAIRE LUMINAIRES FOR DIRECT LIGHTING



Ceiling Hanger with Plain Globe

Semi-Rigid Hanger with Plain Globe

Chain Hanger with Decorated Globe

Westinghouse Sollaire Luminaires are totally enclosed, general diffusing lighting units for use in stores, offices and schools. They provide the highest of footcandle intensities in relation to current consumption, and at the same time hold globe brightness to a minimum. Units are furnished **unwired**, but full length leads of adequate size wire are supplied. Globe is supported by two heavy steel cadmium-plated prongs.

Globe is homogeneous patented Monax glass with high diffusion and transmission characteristics. All Sollaire globes have flame-seared fitter edge to minimize chipping in service and to eliminate minute fissures which develop into destructive cracks.

All units are entirely approved by the National Board of Fire Underwriters.

Accessories

Canopy Switches—Canopies are furnished with knockout for Levolier No. 41 canopy switch, which will be furnished installed at **$2.00** each additional, and not installed at **$1.15** each additional.

Three-Lite Sockets—Mogul sockets for three-lite lamps will be furnished on all mogul units at **$1.00** additional. Both canopy switch and three-lite socket will be furnished at **$2.35** additional.

	Complete Unit			Hanger Only		Globe Only		
For Lamp Size Watts	Cat. No.	Approx.† Over-all Length Inches	Price Each†	Cat. No.	Price Each	Cat. No.	Diam. Inches	Price Each
			Semi-Rigid Hanger with Plain Globe					
50–60	890356	29⅝	$4.90	890384	$4.40	349034	8x4	$0.70
75–100	890357	30⅞	5.50	890384	4.40	890484	10x4	1.30
150	890358	32¼	6.45	890384	4.40	890485	12x4	2.25
150–200	890359	34¼	7.55	890385	4.95	890486	14x6	2.85
300	890360	35⅜	9.10	890386	5.15	890487	16x6	4.20
300–500	890361	36	11.40	890386	5.15	890488	18x6	6.50
750–1000	890362	38¾	19.35	890387	8.05	890489	20x8	11.70
			Semi-Rigid Hanger with Decorated Globe					
50–60	890363	29⅝	6.10	890384	4.40	349040	8x4	1.90
75–100	890364	30⅞	7.45	890384	4.40	890490	10x4	3.25
150	890365	32¼	9.00	890384	4.40	890491	12x4	4.80
150–200	890366	34¼	10.80	890385	4.95	890492	14x6	6.10
300	890367	35⅜	13.00	890386	5.15	890493	16x6	8.10
300–500	890368	36	16.60	890386	5.15	890494	18x6	11.70
750–1000	890369	38¾	27.15	890387	8.05	890495	20x8	19.50
			Chain Hanger with Plain Globe					
50–60	890324	29⅝	4.25	890352	3.75	349034	8x4	0.70
75–100	890325	30⅞	4.85	890352	3.75	890484	10x4	1.30
150	890326	32¼	5.80	890352	3.75	890485	12x4	2.25
150–200	890327	34¼	6.85	890353	4.20	890486	14x6	2.85
300	890328	35⅜	8.50	890354	4.50	890487	16x6	4.20
300–500	890329	36	10.80	890354	4.50	890488	18x6	6.50
750–1000	890330	38¾	18.35	890355	7.00	890489	20x8	11.70
			Chain Hanger with Decorated Globe					
50–60	890331	29⅝	5.45	890352	3.75	349040	8x4	1.90
75–100	890332	30⅞	6.80	890352	3.75	890490	10x4	3.25
150	890333	32¼	8.35	890352	3.75	890491	12x4	4.80
150–200	890334	34¼	10.10	890353	4.20	890492	14x6	6.10
300	890335	35⅜	12.40	890354	4.50	890493	16x6	8.10
300–500	890336	36	16.00	890354	4.50	890494	18x6	11.70
750–1000	890337	38¾	26.15	890355	7.00	890495	20x8	19.50

†In quantities of 10 or less, Chain and Semi-Rigid Units shorter than standard will be furnished at a fixed charge of **$0.55** per unit extra, regardless of length. Semi-Rigid Units longer than standard will be supplied at a fixed charge of **$0.55** each, plus **$0.10** per inch additional. Chain Units longer than standard will be supplied at a fixed charge of **$0.55** each, plus **$0.10** extra for each additional chain link, 7 links per foot. This applies to each catalog number regardless of separate order items. In quantities of 11 or more, fixed charges above are omitted and charges for extra lengths remain the same.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

SOLLAIRE LUMINAIRES FOR DIRECT LIGHTING

	Complete Unit			Hanger Only		Globe Only		
For Lamp Size Watts	Cat. No.	Approx. Over-all Length Inches	Price Each	Cat. No.	Price Each	Cat. No.	Diam. Inches	Price Each
Ceiling Hanger with Plain Globe								
50–60	890292	29⅝	$3.35	890320	$2.80	349034	8x4	$0.70
75–100	890293	30⅞	3.95	890320	2.80	890484	10x4	1.30
150	890294	32¼	4.90	890320	2.80	890485	12x4	2.25
150–200	890295	34¼	6.05	890321	3.35	890486	14x6	2.85
300	890296	35⅝	7.80	890322	3.80	890487	16x6	4.20
300–500	890297	36	10.10	890322	3.80	890488	18x6	6.50
750–1000	890298	38¾	17.75	890323	6.35	890489	20x8	11.70
Ceiling Hanger with Decorated Globe								
50–60	890299	29⅝	4.55	890320	2.80	349040	8x4	1.90
75–100	890300	30⅞	5.90	890320	2.80	890490	10x4	3.25
150	890301	32¼	7.45	890320	2.80	890491	12x4	4.80
150–200	890302	34¼	9.30	890321	3.35	890492	14x6	6.10
300	890303	35⅝	11.70	890322	3.80	890493	16x6	8.10
300–500	890304	36	15.30	890322	3.80	890494	18x6	11.70
750–1000	890305	38¾	25.55	890323	6.35	890495	20x8	19.50

INSTALLATION DESIGN DATA FOR SOLLAIRE, SOLLUX, MAGNALAIRE AND SOLLITE LUMINAIRES

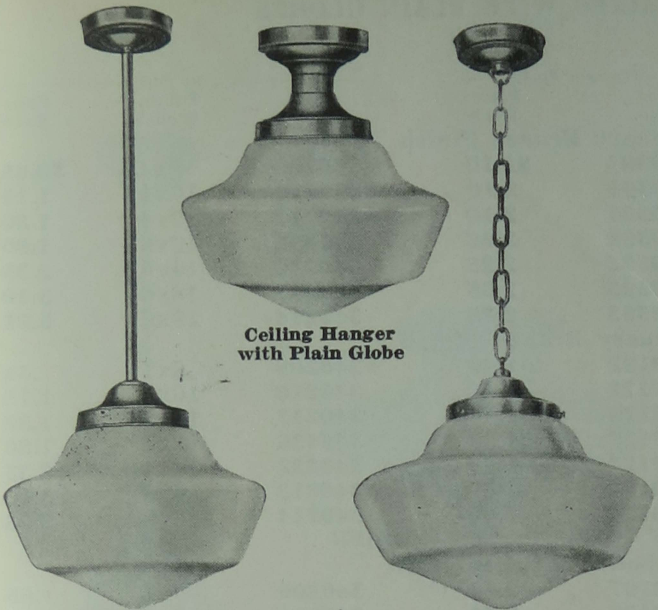
					AVERAGE FOOTCANDLES				
Ceiling Height (Feet)	Recom. Mtg. Ht. (Feet)	Approx. Spacing (Feet)	Area per Outlet (Sq. Ft.)	Conditions Factor	100 Watts	150 Watts	200 Watts	300 Watts	500 Watts
8′ 6″	7′ 3″	7x7	45–56	Favorable	11–14	19–23	24–30	40–50	
				Average	9–12	16–19	20–26	34–42	
				Unfavorable	6–8	11–13	14–17	23–29	
9′	7′ 9″	8x8	56–72	Favorable	8.5–11	15–19	19–24	31–40	
				Average	7.5–9	12–16	16–20	26–34	
				Unfavorable	5–6	8–11	11–14	18–23	
10′	8′ 6″	9x9	72–90	Favorable	7–8.5	12–15	15–19	25–31	43–54
				Average	6–7.5	10–12	13–16	21–26	37–46
				Unfavorable	4–5	6.5–8	8.5–11	14–18	25–31
11′	9′	10x10	90–110	Favorable	5.5–7	9–12	12–15	20–25	36–43
				Average	5–6	8–10	11–13	17–21	30–37
				Unfavorable	3–4	5.5–6.5	7–8.5	12–14	20–25
12′ 6″	10′	11x11	110–132	Favorable	4.5–5.5	8–9	10–12	17–20	30–36
				Average	4–5	6.5–8	9–11	14–17	25–30
				Unfavorable	2.5–3	4.5–5.5	6–7	10–12	17–20
14′	11′	12x12	132–156	Favorable	4–4.5	6.5–8	8.5–10	14–17	25–30
				Average	3.5–4	5.5–6.5	7.5–9	12–14	21–25
				Unfavorable	2–2.5	4–4.5	5–6	8–10	14–17
5′	11½′	13x13	156–182	Favorable		5.5–6.5	7.5–8.5	12–14	22–25
				Average		5–5.5	6.5–7.5	10–12	18–21
				Unfavorable		3–4	4.5–5	7–8	12–14
16′	12′	14x14	182–226	Favorable		4.5–5.5	6–7.5	10–12	17–22
				Average		4–5	5–6.5	8.5–10	15–18
				Unfavorable		2.5–3	3.5–4.5	6–7	10–12
17′ 6″	13′	16x16	226–295	Favorable				7.5–10	13–17
				Average				6.5–8.5	11–18
				Unfavorable				4.5–6	7.5–10
19′	14½′	18x18	295–367	Favorable					11–13
				Average					9–11
				Unfavorable					6–7.5

CONDITIONS FACTOR—Use **Favorable** when room width equals four times **mounting height.**
Use **Average** when room width equals two times **mounting height.**
Use **Unfavorable** when room width equals **mounting height.**

Footcandle values are calculated on the basis of recommended reflection factors of ceiling and walls, and to include normal depreciation. If walls and ceiling have lower reflection factors than recommended, the next larger size lamp should be used.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

SOLLITE LUMINAIRES FOR DIRECT LIGHTING



Ceiling Hanger with Plain Globe

Semi-Rigid Hanger with Plain Globe

Chain Hanger with Plain Globe

Units are approved by the National Board of Fire Underwriters

Westinghouse Sollite Luminaires are luminous direct lighting units. They meet the specifications of governmental agencies. They are inexpensive and provide high intensities of light with minimum globe surface brightness.

Hangers take Type AF stranded fixture wire. Four-inch hangers use No. 16 wire, six-inch hangers use No. 14 wire. Wire is provided, but units are not wired.

Globe holders are No. 22 gauge brass with beaded edge. Safety holder support is rigid cadmium finished strap, shaped to conform to inside curvature of globe fitter; globe is kept in position by a holder ring. Screw holder type has three brass inserts securely locked at fitter, accommodating No. 6 brass thumb screws. Socket is glazed porcelain with all metal parts nickel-plated.

Enclosing globes are diffusing, single layer, homogeneous glass strictly conforming to the standard illuminating glassware specifications of the Illuminating Engineering Society.

In addition, each globe has a chip-resisting fitter edge which eliminates sharp, knife-like edges as well as minute fissures which vibration may develop into destructive cracks. The fitter edge is thus reinforced with a strong, smooth, rounded shoulder of extra glass.

SAFETY TYPE SOLLITE LUMINAIRES WITH PLAIN GLOBES

	Complete Unit			Hanger Only		Globe Only		
For Lamp Size Watts	Cat. No.	Approx.† Over-all Length Inches	Price Each	Cat. No.	Price Each	Cat. No.	Diam. Inches	Price Each
Semi-Rigid Suspension—Satin Chrome Finish								
50–60	**892969**	29⅜	**$3.15**	**1119113**	**$2.50**	**340209**	8x4	**$0.65**
75–100	**892970**	30⅜	**3.70**	**1119113**	**2.50**	**340210**	10x4	**1.15**
150	**892971**	31⅜	**4.30**	**1119113**	**2.50**	**340211**	12x4	**1.80**
150	**1119131**	31⅜	**4.40**	**1119114**	**2.65**	**346436**	12x6	**1.80**
150–200	**892972**	33¼	**5.00**	**1119114**	**2.65**	**340232**	14x6	**2.35**
300	**892973**	34½	**5.95**	**1119115**	**2.85**	**340213**	16x6	**3.10**
300–500	**892974**	36⅛	**8.10**	**1119115**	**2.85**	**340214**	18x6	**5.25**
Chain Suspension—Satin Chrome Finish								
50–60	**1119378**	29⅜	**3.00**	**1119394**	**2.35**	**340209**	8x4	**.65**
75–100	**1119379**	30⅜	**3.50**	**1119394**	**2.35**	**340210**	10x4	**1.15**
150	**1119380**	31⅜	**4.15**	**1119394**	**2.35**	**340211**	12x4	**1.80**
150	**1119381**	31⅜	**4.30**	**1119395**	**2.50**	**346436**	12x6	**1.80**
150–200	**1119382**	33	**4.90**	**1119395**	**2.50**	**340232**	14x6	**2.35**
300	**1119383**	34¼	**5.70**	**1119396**	**2.65**	**340213**	16x6	**3.10**
300–500	**1119384**	35⅞	**7.90**	**1119396**	**2.65**	**340214**	18x6	**5.25**
Ceiling Mounting—Satin Chrome Finish								
50–60	**892993**	10	**2.30**	**1119125**	**1.70**	**340209**	8x4	**.65**
75–100	**892994**	11	**2.85**	**1119125**	**1.70**	**340210**	10x4	**1.15**
150	**892995**	12	**3.45**	**1119125**	**1.70**	**340211**	12x4	**1.80**
150	**1119135**	12	**3.70**	**1119126**	**1.90**	**346436**	12x6	**1.80**
150–200	**892996**	13⅞	**4.25**	**1119126**	**1.90**	**340232**	14x6	**2.35**
300	**892997**	14⅜	**5.15**	**1119127**	**2.05**	**340213**	16x6	**3.10**
300–500	**892998**	16¾	**7.30**	**1119127**	**2.05**	**340214**	18x6	**5.25**
Semi-Rigid Suspension—Statuary Bronze Finish								
50–60	**892963**	29⅜	**2.90**	**1119110**	**2.25**	**340209**	8x4	**.65**
75–100	**892964**	30⅜	**3.40**	**1119110**	**2.25**	**340210**	10x4	**1.15**
150	**892965**	31⅜	**4.05**	**1119110**	**2.25**	**340211**	12x4	**1.80**
150	**1119130**	31⅜	**4.15**	**1119111**	**2.35**	**346436**	12x6	**1.80**
150–200	**892966**	33¼	**4.75**	**1119111**	**2.35**	**340232**	14x6	**2.35**
300	**892967**	34½	**5.65**	**1119112**	**2.55**	**340213**	16x6	**3.10**
300–500	**892968**	36⅛	**7.80**	**1119112**	**2.55**	**340214**	18x6	**5.25**

†Sollite Units cannot be supplied economically in non-standard lengths except in quantities of 40 or more. Prices will be quoted on request.

WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

SOLLITE LUMINAIRES FOR DIRECT LIGHTING

SAFETY TYPE SOLLITE LUMINAIRES WITH PLAIN GLOBES

	Complete Unit			Hanger Only		Globe Only		
For Lamp Size Watts	Cat. No.	Approx.† Over-all Length Inches	Price Each	Cat. No.	Price Each	Cat. No.	Diam. Inches	Price Each
Chain Suspension—Statuary Bronze Finish								
50–60	**1119371**	29⅜	**$2.75**	**1119391**	**$2.10**	**340209**	8x4	**$0.65**
75–100	**1119372**	30⅜	**3.25**	**1119391**	**2.10**	**340210**	10x4	**1.15**
150	**1119373**	31⅜	**3.90**	**1119391**	**2.10**	**340211**	12x4	**1.80**
150	**1119374**	31⅜	**4.05**	**1119392**	**2.25**	**346436**	12x6	**1.80**
150–200	**1119375**	33	**4.60**	**1119392**	**2.25**	**340232**	14x6	**2.35**
300	**1119376**	34¼	**5.45**	**1119393**	**2.35**	**340213**	16x6	**3.10**
300–500	**1119377**	35⅞	**7.60**	**1119393**	**2.35**	**340214**	18x6	**5.25**
Ceiling Mounting—Statuary Bronze Finish								
50–60	**892987**	10	**2.05**	**1119122**	**1.40**	**340209**	8x4	**.65**
75–100	**892988**	11	**2.55**	**1119122**	**1.40**	**340210**	10x4	**1.15**
150	**892989**	12	**3.20**	**1119122**	**1.40**	**340211**	12x4	**1.80**
150	**1119134**	12	**3.40**	**1119123**	**1.65**	**346436**	12x6	**1.80**
150–200	**892990**	13⅞	**4.00**	**1119123**	**1.65**	**340232**	14x6	**2.35**
300	**892291**	14⅜	**4.90**	**1119124**	**1.80**	**340213**	16x6	**3.10**
300–500	**892992**	16¾	**7.05**	**1119124**	**1.80**	**340214**	18x6	**5.25**
SCREW TYPE LUMINAIRES WITH PLAIN GLOBES								
Semi-Rigid Suspension—Satin Chrome Finish								
50–60	**892957**	29⅜	**3.10**	**1119107**	**2.45**	**340209**	8x4	**.65**
75–100	**892958**	30⅜	**3.60**	**1119107**	**2.45**	**340210**	10x4	**1.15**
150	**892959**	31⅜	**4.25**	**1119107**	**2.45**	**340211**	12x4	**1.80**
150	**1119129**	31⅜	**4.35**	**1119108**	**2.55**	**346436**	12x6	**1.80**
150–200	**892960**	33¼	**4.95**	**1119108**	**2.55**	**340232**	14x6	**2.35**
300	**892961**	34½	**5.90**	**1119109**	**2.80**	**340213**	16x6	**3.10**
300–500	**892962**	36⅛	**8.05**	**1119109**	**2.80**	**340214**	18x6	**5.25**
Chain Suspension—Satin Chrome Finish								
50–60	**1119364**	29⅜	**2.55**	**1119388**	**1.95**	**340209**	8x4	**.65**
75–100	**1119365**	30⅜	**3.10**	**1119388**	**1.95**	**340210**	10x4	**1.15**
150	**1119366**	31⅜	**3.75**	**1119388**	**1.95**	**340211**	12x4	**1.80**
150	**1119367**	31⅜	**3.85**	**1119389**	**2.05**	**346436**	12x6	**1.80**
150–200	**1119368**	33	**4.40**	**1119389**	**2.05**	**340232**	14x6	**2.35**
300	**1119369**	34¼	**5.25**	**1119390**	**2.15**	**340213**	16x6	**3.10**
300–500	**1119370**	35⅞	**7.40**	**1119390**	**2.15**	**340214**	18x6	**5.25**
Ceiling Mounting—Satin Chrome Finish								
50–60	**892981**	10	**2.15**	**1119119**	**1.50**	**340209**	8x4	**.65**
75–100	**892982**	11	**2.70**	**1119119**	**1.50**	**340210**	10x4	**1.15**
150	**892983**	12	**3.30**	**1119119**	**1.50**	**340211**	12x4	**1.80**
150	**1119133**	12	**3.45**	**1119120**	**1.70**	**346436**	12x6	**1.80**
150–200	**892984**	13⅞	**4.05**	**1119120**	**1.70**	**340232**	14x6	**2.35**
300	**892985**	14⅜	**4.90**	**1119121**	**1.80**	**340213**	16x6	**3.10**
300–500	**892986**	16¾	**7.05**	**1119121**	**1.80**	**340214**	18x6	**5.25**
Semi-Rigid Suspension—Statuary Bronze Finish								
50–60	**892951**	29⅜	**2.85**	**892999**	**2.20**	**340209**	8x4	**.65**
75–100	**892952**	30⅜	**3.35**	**892999**	**2.20**	**340210**	10x4	**1.15**
150	**892953**	31⅜	**4.00**	**892999**	**2.20**	**340211**	12x4	**1.80**
150	**1119128**	31⅜	**4.10**	**1119105**	**2.30**	**346436**	12x6	**1.80**
150–200	**892954**	33¼	**4.65**	**1119105**	**2.30**	**340232**	14x6	**2.35**
300	**892955**	34½	**5.60**	**1119106**	**2.50**	**340213**	16x6	**3.10**
300–500	**892956**	36⅛	**7.75**	**1119106**	**2.50**	**340214**	18x6	**5.25**
Chain Suspension—Statuary Bronze Finish								
50–60	**1119357**	29⅜	**2.30**	**1119385**	**1.70**	**340209**	8x4	**.65**
75–100	**1119358**	30⅜	**2.85**	**1119385**	**1.70**	**340210**	10x4	**1.15**
150	**1119359**	31⅜	**3.45**	**1119385**	**1.70**	**340211**	12x4	**1.80**
150	**1119360**	31⅜	**3.55**	**1119386**	**1.80**	**346436**	12x6	**1.80**
150–200	**1119361**	33	**4.15**	**1119386**	**1.80**	**340232**	14x6	**2.35**
300	**1119362**	34¼	**5.00**	**1119387**	**1.90**	**340213**	16x6	**3.10**
300–500	**1119363**	35⅞	**7.15**	**1119387**	**1.90**	**340214**	18x6	**5.25**
Ceiling Mounting—Statuary Bronze Finish								
50–60	**892975**	10	**1.90**	**1119116**	**1.25**	**340209**	8x4	**.65**
75–100	**892976**	11	**2.40**	**1119116**	**1.25**	**340210**	10x4	**1.15**
150	**892977**	12	**3.05**	**1119116**	**1.25**	**340211**	12x4	**1.80**
150	**1119132**	12	**3.20**	**1119117**	**1.40**	**346436**	12x6	**1.80**
150–200	**892978**	13⅞	**3.80**	**1119117**	**1.40**	**340232**	14x6	**2.35**
300	**892979**	14⅜	**4.60**	**1119118**	**1.50**	**340213**	16x6	**3.10**
300–500	**892980**	16¾	**6.75**	**1119118**	**1.50**	**340214**	18x6	**5.25**

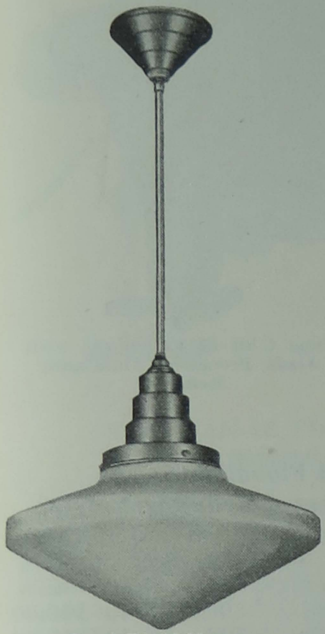
†Sollite Units cannot be supplied economically in non-standard lengths except in quantities of 40 or more. Prices will be quote on request.

For installation design data, see SOLLAIRE listing.

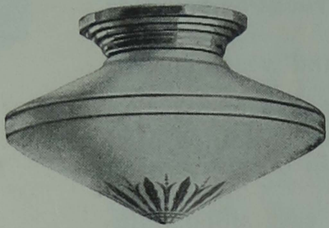
WESTINGHOUSE COMMERCIAL LIGHTING EQUIPMENT

MAGNALAIRE LUMINAIRES

For Direct Lighting



Semi-Rigid Hanger with Plain Globe



Ceiling Hanger with Decorated Globe

Westinghouse Magnalaire Luminaires are luminous direct lighting units and are modern in appearance for general lighting installations. They conform with the shape and design of the Westinghouse Magnalux Luminaires but are of the totally enclosed globe type and thus could be used in hallways or other locations to match in with the Magnalux. The globes are made from diffusing Monax glass.

All hangers are furnished **unwired**, but full-length leads of adequate size wire are supplied. All metal parts are finished in satin aluminum.

Stem is one-piece seamless aluminum tubing forming swivel joint at the canopy.

Globe is held by three thumb screws. All globes have flame-seared fitter edge to minimize chipping in service and to eliminate minute fissures which develop into destructive cracks.

Units are entirely approved by the National Board of Fire Underwriters.

Accessories

Canopy Switch—Canopy is furnished with knockout for Levolier No. 41 switch, which will be furnished installed at **$2.00** each additional, and not installed at **$1.15** each additional. On the ceiling hanger, the ceiling plate must be specially drilled for canopy switch. Prices on request.

Three-Lite Sockets—Mogul sockets for three-lite lamps will be furnished on all mogul units at **$1.00** additional.

Both the canopy switch and the three-lite socket will be furnished at **$2.35** additional.

	Complete Unit			Hanger Only		Globe Only		
For Lamp Size Watts	Cat. No.	Approx.† Over-all Length Inches	Price Each	Cat. No.	Price Each	Cat. No.	Diam. Inches	Price Each
			Semi-Rigid Hanger with Plain Globe					
60	**890152**	28⅛	**$6.40**	**789422**	**$4.95**	**786819**	10x4	**$1.70**
75–100	**888337**	29¾	**7.55**	**789422**	**4.95**	**786820**	12x4	**2.85**
150–200	**888338**	31⅝	**9.15**	**789423**	**5.70**	**789900**	14x6	**3.70**
300	**888339**	32	**11.00**	**789424**	**5.95**	**787855**	16x6	**5.35**
500	**888340**	34¼	**14.00**	**789424**	**5.95**	**789731**	18x6	**8.35**
			Ceiling Hanger with Plain Globe					
60	**786798**	6¾	**4.75**	**786814**	**3.20**	**786819**	10x4	**1.70**
75–100	**786799**	8⅜	**5.90**	**786814**	**3.20**	**786820**	12x4	**2.85**
150–200	**786800**	10¼	**6.80**	**786815**	**3.25**	**786821**	14x5	**3.70**
			Semi-Rigid Hanger with Decorated Globe					
60	**890153**	28⅛	**9.40**	**789422**	**4.95**	**786822**	10x4	**4.70**
75–100	**888341**	29¾	**11.60**	**789422**	**4.95**	**786823**	12x4	**6.90**
150–200	**888342**	31⅝	**14.20**	**789423**	**5.70**	**789901**	14x6	**8.75**
300	**888343**	32⅛	**17.20**	**789424**	**5.95**	**787856**	16x6	**11.55**
500	**888344**	34¼	**22.35**	**789424**	**5.95**	**789834**	18x6	**16.70**
			Ceiling Hanger with Decorated Globe					
60	**786801**	6¾	**7.75**	**786814**	**3.20**	**786822**	10x4	**4.70**
75–100	**786802**	8⅜	**9.95**	**786814**	**3.20**	**786823**	12x4	**6.90**
150–200	**786803**	10¼	**11.85**	**786815**	**3.25**	**786824**	14x5	**8.75**

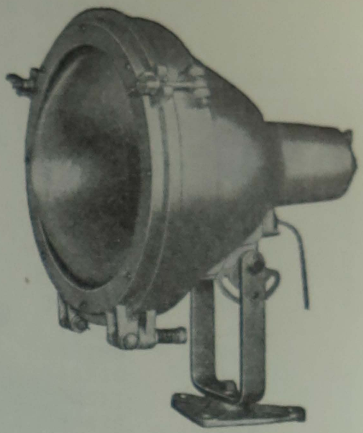
†In quantities of 10 or less, Units shorter than standard will be furnished at a fixed charge of **$0.55** per unit regardless of length. Units longer than standard will be supplied at a fixed charge of **$0.55** per unit plus **$0.10** per inch additional. This applies to total quantity of each catalog number regardless of length or separate order items. In quantities of 11 or more, units shorter than standard will be furnished at standard price—units longer than standard at **$0.10** per inch additional.

For installation design data, see SOLLAIRE listing.

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

TYPE CAK-12- AND 14-INCH FLOODLIGHTS

Type CAK-12 Floodlight with Alzak Processed Aluminum Reflector



Type CAK-14 Floodlight with Alzak Processed Aluminum Reflector

Type CAK-12 Floodlight is designed for heavy duty service requiring a light-weight, compact unit. Suitable for lighting of signs, low building set backs, parapets, small towers, statues, roadside stands, nurseries and similar installations. Type CAKP-12 is the same as the CAK-12 except with a portable wheel base and carrying handle.

Type CAK-14 Floodlight is designed for severe operation where a heavy duty enclosing unit is required. Suitable for floodlighting buildings, monuments, bathing beaches, signs, industrial yards, construction projects, fire trucks and similar applications.

Both floodlights are dust-tight and weatherproof. The aluminum reflector is treated by the Alzak Process to produce a finish high in efficiency, resistant to deteriorating effect of sustained high temperature; does not crack, chip or peel and is easily cleaned.

Both floodlights have weatherproof, non-corrosive, cast silicon aluminum alloy bodies. Cooling is obtained entirely by radiation.

Type CAK-12 has a medium screw base socket with nickel plated metal parts and a spring phosphor bronze center contact. Two feet of 2-conductor asbestos insulated rubber covered cable brought through a water-tight packing gland.

Type CAK-14 has a mogul screw base socket. A universal focusing device provides for proper positioning of lamp at reflector focal point. 30 inches of cable.

Type CAK-12, net weight 15 pounds, approximate shipping weight 18 pounds: Type CAK-14; net weight 35 pounds, approximate shipping weight 50 pounds.

Type CAK-12 Floodlights with Alzak Processed Reflectors*

With Narrow Beam Reflector

Cat. No.	Lens	Lamps				Price Each
		Watts	Bulb	Watts	Bulb	
890648	Plain	200	PS-30	250	G-30	$38.00
890649	Stippled	200	PS-30	250	G-30	38.00
890651	Horiz. Spr.	200	PS-30	250	G-30	38.00
890652	Vert. Spr.	200	PS-30	250	G-30	38.00

Type CAK-12—Photometric Data‡

Lens	Lamp		Degrees Beam Spread Horiz. Vert.	Beam Lumens
	Watts	Bulb		
Plain	200	PS-30	26 x 26	1470
Stippled	200	PS-30	54 x 53	1850
Spread	200	PS-30	60 x 28	1700
Plain	250	G-30	15 x 15	1600
Stippled	250	G-30	40 x 40	1855
Spread	250	G-30	46 x 15	1830

Type CAK-12 Accessories

Cat. No.	Description	Approx. Wt. Lb.		Price Each
		Net	Shp.	
348621	Color Lens Holder	½	1	$0.20
†348624	Amber Inner Lens	2	4	6.00
†348625	Red Inner Lens	2	4	6.00
†348626	Green Inner Lens	2	4	6.00
†348627	Blue Inner Lens	2	4	6.00
348622	Circular Louver	2	3	6.75
348628	Plain Lens Only	3	8	5.00
348673	Stippled Lens Only	3	8	5.00
348674	Rect. Spread Lens Only	3	8	5.00
889250	Narrow Beam Alzak Aluminum Reflector	1	4	9.00

*Silvered glass reflectors can be furnished at no increase in price when specified.

‡For estimating purposes only.

†Catalog Number does not include holder. Holder must be ordered separately.

Type CAK-14 Floodlights with Alzak Processed Reflectors*

Reflector Narrow Beam Cat. No.	Reflector Wide Beam Cat. No.	Lens	Lamp Watts	Lamp Bulb	Price Each
890633	890643	Plain	500	PS-40	$60.00
890634	....	Plain	500	G-40	60.00
890635	890644	Stippled	500	PS-40	60.00
890636	....	Stippled	500	G-40	60.00
890639	890646	Vert. Spr.	500	PS-40	60.00
890640	....	Vert. Spr.	500	G-40	60.00
890641	890647	Horiz. Spr.	500	PS-40	60.00
890642	....	Horiz. Spr.	500	G-40	60.00

All bases standard. Data on other types on request.

Type CAK-14—Photometric Data‡

Lens	500 Watt Lamp Bulb	Narrow Beam Refl.		Wide Beam Refl.	
		Degrees Beam Spd. Horiz. Vert.	Beam Lumens	Degrees Beam Spd. Horiz. Vert.	Beam Lumens
Plain	PS-40	26 x 24	4500	80 x 80	5050
Plain	G-40	15 x 15	4000	....	....
Stpld.	PS-40	45 x 45	4540	90 x 90	5200
Stpld.	G-40	39 x 39	4200	....	....
Spread	PS-40	57.5 x 26	4530	90 x 80	5150
Spread	G-40	50 x 15	4200	....	....

Type CAK-14 Accessories

Cat. No.	Description	Approx. Wt. Lbs.		Price Each
		Net	Shpg.	
349510	Clips for Color Lens, Mounting, 4 Required	¾	1	$0.05
†349713	Amber Inner Lens	6	11	9.00
†349710	Red Inner Lens	6	11	9.00
†342233	Green Inner Lens	6	11	9.00
†347999	Blue Inner Lens	6	11	9.00
349324	Socket Stilt G-Bulb Lamp	1	1½	2.00
349325	Visor	3	5	7.00
348568	Circular Louver	3	5	10.00
348631	Plain Lens and Gasket	6	11	6.50
348632	Stippled Lens and Gasket	6	11	6.50
348634	Rect. Spr. Lens and Gask.	6	11	6.50
889110	Narrow Beam Alzak Aluminum Reflector	1½	6	21.00
889247	Wide Beam Alzak Aluminum Reflector	1½	6	21.00

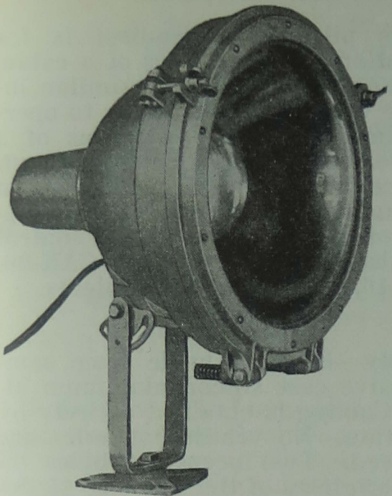
*Silvered glass reflectors can be furnished at no increase in price when specified.

‡For estimating purposes only.

†Catalog Number does not include mounting clips. These must be ordered separately.

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

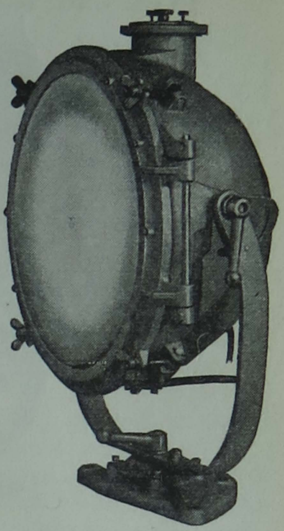
TYPE CAK-16- AND 20-INCH FLOODLIGHTS



Type CAK-16 Floodlight is designed for severe service where a heavy duty enclosing unit is required. Ideal for general utility, building and other permanent installations.

Type CAK-20 Floodlight is designed for severe service where a heavy duty unit is required. Ideal for applications requiring a long range unit with maximum light output and accurate control, as: railroad yards, industrial areas, large construction projects and protective floodlighting. Also used in ball parks and other sports fields where unusually long range is required.

Type CAK-16 is dust-tight, Type CAK-20 air-tight, and both are weatherproof. Both have an aluminum reflector treated by the Alzak Process to produce a finish high in efficiency, resistant to the deteriorating effect of sustained high temperature. Reflector does not crack, chip or peel, is easily cleaned and resists severe shocks and vibration.



Type CAK-16 Floodlight with Alzak Processed Reflectors*

Reflector			Lamp		
Narrow Beam Cat. No.	Wide Beam Cat. No.	Lens	Watts	Bulb	Price Each
890618	890628	Plain	1000	PS-52	$85.00
890619		Plain	1000	G-40	85.00
890620	890629	Stippled	1000	PS-52	85.00
890621		Stippled	1000	G-40	85.00
890624	890631	Horiz. Spr.	1000	PS-52	85.00
890625		Horiz. Spr.	1000	G-40	85.00
890626	890632	Vert. Spr.	1000	PS-52	85.00
890627		Vert. Spr.	1000	G-40	85.00

All bases standard. Data on other types will be furnished on request.

Type CAK-16—Photometric Data‡

		Narrow Beam Refl.		Wide Beam Refl.	
Lens	1000 Watt Lamp Bulb	Degrees Beam Spd. Horiz. Vert.	Beam Lumens	Degrees Beam Spd. Horiz. Vert.	Beam Lumens
Plain	PS-52	23.5 x 20.5	8250	75 x 75	10200
Plain	G-40	13 x 13	7920	75 x 75	10200
Stpld.	PS-52	39 x 40	8250	83 x 83	10500
Stpld.	G-40	33 x 33	8700	83 x 83	10500
Spread	PS-52	46 x 25.6	9100	85 x 75	10400
Spread	G-40	40 x 13	8500	85 x 75	10400

Type CAK-16 Accessories

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
349510	Clips for Color Lens Mounting, 5 Required	1	$0.05
†349717	Amber Inner Lens	15	13.00
†349714	Red Inner Lens	15	13.00
†342247	Green Inner Lens	15	13.00
†347998	Blue Inner Lens	15	13.00
348530	Socket Stilt for G-Bulb Lamp	1½	2.00
349305	Visor	7	7.00
348531	Circular Louver	5	10.00
348637	Plain Lens and Gasket	15	9.50
348638	Stippled Lens and Gasket	15	9.50
348640	Rectilinear Spread Lens and Gasket	15	9.50
889109	Narrow Beam Alzak Aluminum Reflector	7	23.00
889246	Wide Beam Alzak Aluminum Reflector	7	23.00

*Silvered glass reflectors can be furnished at no increase in price when specified on order.

†Catalog Number does not include mounting clips. These must be ordered separately.

These must be ordered separately.

Type CAK-20 Floodlights with Alzak Processed Reflectors*

Reflector			Lamp		
Narrow Beam Cat. No.	Wide Beam Cat. No.	Lens	Watts	Bulb	Price Each
890600	890612	Plain	1500	PS-52	$140.00
890601		Plain	1500	G-48	140.00
890602	890613	Stippled	1500	PS-52	140.00
890603		Stippled	1500	G-48	140.00
890606	890615	Horiz. Spr.	1500	PS-52	140.00
890607		Horiz. Spr.	1500	G-48	140.00
890608	890616	Vert. Spr.	1500	PS-52	140.00
890609		Vert. Spr.	1500	G-48	140.00
▲890610	890617	Plain	1500	PS-52	140.00
▲890611		Plain	1500	G-48	140.00

▲Railroad bases. Other bases, standard.

Type CAK-20—Photometric Data‡

		Narrow Beam Refl.		Wide Beam Refl.	
Lens	1500 Watt Lamp Bulb	Degrees Beam Spd. Horiz. Vert.	Beam Lumens	Degrees Beam Spd. Horiz. Vert.	Beam Lumens
Plain	PS-52	26.5 x 20	13800	70 x 70	17500
Plain	G-48	14 x 14	12600	---- ----	---------
Stpld.	PS-52	50 x 47	15900	85 x 85	18200
Stpld.	G-48	41 x 41	13700	---- ----	---------
Spread	PS-52	48 x 21	15500	80 x 70	18000
Spread	G-48	42 x 14	13200	---- ----	---------

Type CAK-20 Accessories

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
348277	Amber Inner Lens Assembly	27	$30.00
348274	Red Inner Lens Assembly	27	30.00
348276	Green Inner Lens Assembly	27	30.00
348275	Blue Inner Lens Assembly	27	30.00
349304	Socket Stilt for G-Bulb Lamp	1½	2.00
348091	Visor	9	10.00
348572	Circular Louvers	5	17.00
348641	Plain Lens and Gasket	24	17.00
348642	Stippled Lens and Gasket	24	17.00
348644	Rectilinear Spread Lens and Gasket	24	17.00
889244	Narrow Beam Alzak Aluminum Reflector	10	40.00
889245	Wide Beam Alzak Aluminum Reflector	10	40.00
348106	Railroad Base with Rotation Stop	20	17.30

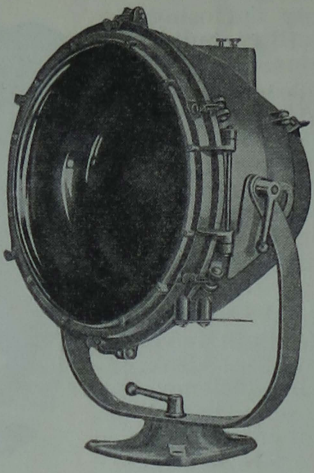
*Silvered glass reflectors can be furnished at no increase in price when specified on order.

Shp. Wts.: CAK-16, 66 lbs. CAK-20, 137 lbs.

‡For estimating purposes only.

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

TYPE CAG 24-INCH FLOODLIGHTS



Designed for long-range floodlighting to produce a narrow beam, of high candlepower, such as is required for railroad yards. The large lumen output provides a maximum of light with a minimum of units.

Dut to air-tight construction which prevents deposits of dirt and soot on the reflector, high efficiency is obtained with low maintenance and operating expense. Full adjustment of the lamp is provided by three external thumb screws which control the lamp movement vertically, horizontally and backward or forward.

The body is two-piece, heavy, non-corrosive cast-silicon aluminum-alloy with hinged rear door for relamping from the rear. The door seats on a gasket to produce a dust-tight and moisture-proof seal. Cooling is obtained entirely through radiation—no ventilating holes are required.

The convex lens is made of heavy, heat-resisting glass. Three types of lenses are available: plain, stippled, and spread types.

The type CAG-24 floodlight uses 2000-watt (special), 1500, 1000 or 750-watt, PS-52 General Service Lamps; or 1500-watt, G-48 floodlight lamp (special); or 1000-watt, G-40 floodlight lamp. For a very high candlepower beam of narrow divergence, a socket stilt is used with a G-bulb lamp.

Where spilled light from the lamp is undesirable, circular louvers or visors may be used.

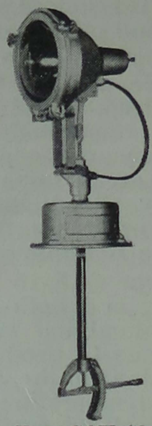
Shipping weight, 175 pounds.

With Silvered-Glass and Narrow-Beam Reflectors

Cat. No.	Lens	Lamp* Watts	Lamp* Bulb	Price
	Standard Base			
348649	Plain	2000	PS-52	**$230.00**
348567	Plain	1500	G-48	**230.00**
348655	Narrow Horiz. Spread	2000	PS-52	**230.00**
348656	Narrow Horiz. Spread	1500	G-48	**230.00**
348657	Medium Horiz. Spread	2000	PS-52	**230.00**
348658	Medium Horiz. Spread	1500	G-48	**230.00**
348659	Wide Horiz. Spread	2000	PS-52	**230.00**
348660	Wide Horiz. Spread	1500	G-48	**230.00**
348661	Heavily Stippled	2000	PS-52	**230.00**
	Railroad Base			
787158	Plain	2000	PS-52	**230.00**
787159	Plain	1500	G-48	**230.00**

*2000-watt PS and 1500-watt G-48 lamps are special.

PILOT HOUSE CONTROL



Type CAK-16 Floodlight with Pilot House Control

The pilot house control is for operation within shelter of a cabin, house, watch tower, or similar interior where it is necessary to operate the searchlight by means of a control rod and lever arrangement. The control rod can be supplied in various lengths to meet different requirements. The pilot house control can also be used with types CAK-20, CAK-16, and CAK-14 floodlights.

Specifications

Body—Body is made from non-corrosive cast silicon aluminum alloy. Cooling is obtained entirely by radiation. No ventilating holes are required. Two peepsight holes on the periphery of the drum at 45 degrees above the horizontal axis, are used in conjunction with white cross markers on the inside of the body for focusing the lamp. Brass knurled head screws and holding links close the peepsight holes when not in use.

Door—The door frame is made of cast silicon aluminum alloy, hinged to the top under spring tension and is held in place by eye bolts with nuts. A heat-resisting graphited asbestos gasket in the door seats under pressure against the body.

Lens—High-quality heat-resisting flat clear-glass cover is used on standard searchlight with secondary glass reflector. A convex glass cover is used when searchlight is supplied with circular louver for continuous operation with 1000-watt lamps.

Reflectors—The primary reflector and the spherical secondary reflector are made of commercial precision ground and polished silvered glass. Cushioned lugs are used to support the primary reflector at the rear of the housing, and an adjustable ring supported by a steel spider in front of the lamp is used for the secondary reflector.

Mounting—Body is supported from the two sides in a hot galvanized steel bow with a locking handle at one side. Bow is bolted to a hot galvanized cast iron base for mounting on a flat surface or other types of bases when specified.

Louvers—For 1000-watt lamps operated continuously, circular louvers are used in place of the secondary reflector to eliminate spill light.

Socket Assembly—Standard socket is of the skeleton mogul screw type having nickel plated metal parts and spring phosphor-bronze center contact. It is mounted on a universal focusing mechanism which provides for correct positioning of the lamp filament. Other types of sockets can be supplied for special lamps when specified.

Wiring—Four feet of No. 12 two-conductor type S cable enters the housing through a waterproof packing gland.

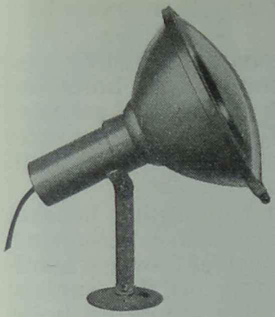
Description *Pilot House Control only for use with Types	Price Each With† Slip Rings	Price Each Without† Slip Rings
CAK-14-16-20 Floodlights	**$115.00**	**$80.00**

*Standard length control rod is 18 inches below base. Longer control rod can be furnished at **$3.00** list per foot additional.

†These prices are additional to standard floodlight prices. Assembly of pilot house control to floodlights must be made at factory.

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

TYPES A-8 AND A-10 UNIVERSAL FLOODLIGHTS



Westinghouse A-8 and A-10 Floodlights are inexpensive, light-weight, weatherproof units for use in industry, in business, on the farm and at home. Typical applications include protective lighting for garages, driveways and yards; lighting for roadside stands, barn yards and general night work on the farm; lighting shrubbery and gardens for night beauty; for increasing intensities of light on merchandise displays in stores; and decorative lighting for holiday seasons.

For use in locations where corrosive effect of weather is not a factor, a wide beam etched aluminum reflector is available. For outdoor use and where higher efficiency is desired, both a wide beam and a narrow beam reflector treated by the Alzak Process are listed.

A-8 and A-10 floodlights are light in weight due to the use of aluminum reflectors and aluminum socket housings.

Specifications

Reflectors—The one-piece reflector-housing is spun from Alclad aluminum. Narrow beam specular reflectors are polished and finished by the Alzak Process. Wide beam reflectors are etched, and one type, as listed, is then treated by the Alzak Process.

Socket Housing—The socket housing is extruded aluminum, flanged and crimped to the reflector-housing to provide a weatherproof seal.

Mounting Bracket—Steel mounting brackets allow horizontal adjustment through 360 degrees and vertical adjustment through 135 degrees. Horizontal and vertical adjustments are made positive by a locking wing nut. Standard flat base for flat surface mounting or ground spike base for mounting on the ground may be furnished.

Lenses—Lenses are held to the reflector by a split lens-holding ring and are sealed weather-tight by a rubber gasket. All plain, spread or color lenses are quality, heat-resisting glass.

Service Cable—Service cable is two-conductor rubber covered, four feet long with soft rubber attachment plug.

Lamp Socket—Medium screw base porcelain sockets have nickel-plated metal parts and spring phosphor-bronze center lamp contact.

Lamps—A-8 uses 100-watt A-23 bulb; A-10 uses 200 watt PS-30 bulb. Lamps are not furnished with floodlights.

Finish—Reflectors — narrow beam, specular Alzak aluminum finish; wide beam, diffuse Alzak aluminum finish; wide beam, etched aluminum. Socket Housings, same as reflectors. Mounting bracket, hot dip galvanized.

Weight—Net weights: A-8, 3 lbs.; A-10, 5 lbs. Shipping weights: A-8, 6 lbs.; A-10, 8 lbs.

COMPLETE UNITS AND LENSES

	Narrow Beam Specular Alzak Aluminum Reflector		Wide Beam Diffuse Alzak Aluminum Reflector		Wide Beam Etched Aluminum Reflector		Lens Only	
Lens Type	Flat Base* Cat. No.	Price Each	Flat Base* Cat. No.	Price Each	Flat Base* Cat. No.	Price Each	Cat. No.	Price Each
	Eight-Inch—100-Watt Type A-8 Floodlight							
Plain	**1120889**	**$9.50**	**1120892**	**$8.00**	**1120895**	**$6.50**	**889615**	**$1.70**
Spread	**1120890**	**9.50**	**1120893**	**8.00**	**1120896**	**6.50**	**890905**	**1.70**
	Ten-Inch—200-Watt Type A-10 Floodlight							
Plain	**1120898**	**14.50**	**1120901**	**12.50**	**1120904**	**10.50**	**890910**	**3.50**
Spread	**1120899**	**14.50**	**1120902**	**12.50**	**1120905**	**10.50**	**890911**	**3.50**

Floodlight Catalog Numbers do not include lamps.

Color Lens: For both the A-8 and A-10 can be supplied on special order at increase in price. Catalog numbers on application.

*Ground spike Catalog Number 1120833 will be furnished at no extra charge when ordered with the floodlight.

PHOTOMETRIC DATA†

		Narrow Beam Alzak Reflector		Wide Beam Alzak or Etched Reflector	
Unit	Lens	Beam Spread	Beam Lumens	Beam Spread	Beam Lumens
A-8	None	55° x 55°	800	100° x 100°	875
	Plain	55° x 55°	730	100° x 100°	790
	Spread	55° x 70°	820	100° x 110°	780
A-10	None	35° x 35°	1600	90° x 90°	1930
	Plain	35° x 35°	1460	90° x 90°	1770
	Spread	35° x 65°	1630	90° x 100°	1740

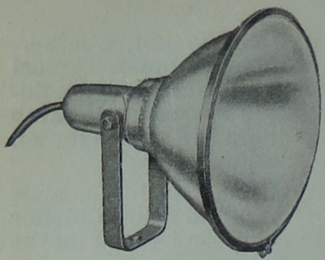
†Approximate—for estimating purposes only.

A-10 data are for clear bulb lamps.

A-8 data are for inside frosted bulb lamps.

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

TYPES A-14, A-16 AND A-20 UNIVERSAL FLOODLIGHTS



Westinghouse A-14, A-16 and A-20 Floodlights are inexpensive, light-weight, weather-tight units for general floodlighting use. Typical applications include floodlight for indoor and outdoor night sports, for night construction projects, for night service station operation, and for building floodlighting.

Light weight is obtained through the use of aluminum reflectors and aluminum socket housings. The reflecting surfaces are all treated by the Alzak Process to produce a finish which is high in efficiency, easily cleaned, and which is resistant to the corrosive effects of weather. The finish becomes an integral part of the metal and does not peel or crack.

The same socket housing and the same mounting bracket are used on the 14, 16 and 20-inch floodlights. The complete units differ only in the size of the reflector used, and reflectors are all interchangeable.

Floodlights may be furnished with narrow beam or wide beam reflectors. Through the use of different lenses and frosted or clear lamps a complete range of narrow, medium or wide beam spreads may be obtained.

Specifications

Reflector—The one-piece reflector-housing is spun from Alclad aluminum. The inner surface is prepared for diffuse finish wide beam reflectors by etching; for specular finish narrow beam reflectors by polishing. The reflector is then treated by the Alzak Process.

Socket Housing—Socket housing is heavy cast aluminum, attached to reflector by four bolts and heavy steel reinforcing cup. A graphitized asbestos gasket provides a waterproof seal between socket housing and reflector. Cable entrance is an inbuilt, waterproof packing gland.

Mounting Bracket—Standard mounting bracket is a galvanized steel bow for cross-arm mounting. Suitable bases to be attached to steel bow are available for slip-fitter, pipe clamp or flat surface mounting. Two ⅞-inch diameter mounting holes spaced 4½ inches apart are provided in flat surface base. Brackets allow for horizontal adjustment through 360 degrees and for vertical adjustment through 180 degrees or more, depending on type of mounting used. However, do not operate units outdoors within 15 degrees of upright vertical.

Service Cable—Two-conductor, rubber-covered, 3 feet long. Both varnished cambric and asbestos insulation are used under rubber jacket.

Lamp Socket—Mogul screw base porcelain sockets have nickel-plated metal parts and spring phosphor-bronze center lamp contact.

Lamps—A-14 uses 300-watt PS-35 bulb or 500-watt PS-40 bulb. A-16 uses 750 or 1000-watt PC-52 bulb. A-20 uses 750-1000 or 1500-watt PS-52 bulb. Lamps are not furnished with floodlights.

Lens—Held to reflector by split lens holding ring with self-spreading lug to facilitate lens removal. Spreading screw is held to lug so that it cannot drop out. All plain, heavy stippled or spread lenses are quality, heat-resisting glass.

Finish—All exterior surfaces except galvanized steel bow are Alzak aluminum finish.

14-INCH, A-14—500 WATT—16-INCH, A-16, 1000 WATT—20-INCH, A-20, 1500 WATT

Type	Lens	Floodlight With Wide Beam Reflector Cat. No.	Floodlight With Wide Beam Reflector Price Each	Floodlight With Narrow Beam Reflector Cat. No.	Floodlight With Narrow Beam Reflector Price Each	Lens Only Cat. No.	Lens Only Price Each
A-14 with Cross-Arm Mounting Bracket	Plain	889762	$25.00	889755	$30.00	788176	$6.00
	Heavy Stippled	889776	25.00	889769	30.00	789393	6.00
	Spread	891575	25.00	891576	30.00	890576	6.00
	None	889748	19.00	889741	24.00	....	....
A-16 with Cross-Arm Mounting Bracket	Plain	889706	33.00	889699	39.00	788177	9.00
	Heavy Stippled	889720	33.00	889713	39.00	789394	9.00
	Spread	891567	33.00	891568	39.00	889309	9.00
	None	889692	22.00	889685	28.00	....	....
A-20 with Cross-Arm Mounting Bracket	Plain	889651	40.00	889645	47.00	346622	17.00
	Heavy Stippled	889664	40.00	889657	47.00	346624	17.00
	Spread	891550	40.00	891551	47.00	346625	17.00
	None	889638	25.00	889632	32.00	....	....

Floodlight Catalog Numbers do not include lamps.

Lenses—Floodlights listed above will be furnished with horizontal or vertical spread lens without extra charge, if specified on order. Color lenses can be furnished at increase in list prices as follows: For 500 watt A-14, **$9.00**; for 100 watt A-16, **$13.00**. Color lenses are **not** recommended for use on A-20 Floodlights.

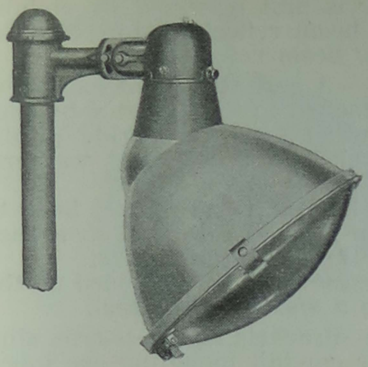
PHOTOMETRIC DATA*

Type	Lens	Narrow Beam Reflector Beam Spread	Narrow Beam Reflector Beam Lumens	Wide Beam Reflector Beam Spread	Wide Beam Reflector Beam Lumens
A-14— 500 Watt	None	35° x 35°	4875	90° x 90°	5950
	Plain	35° x 35°	4500	90° x 90°	5410
	Heavy Stippled	55° x 55°	4900	105° x 105°	5310
	Spread	35° x 65°	5200	90° x 100°	5550
A-16—1000 Watt	None	30° x 30°	9600	85° x 85°	11900
	Plain	30° x 30°	8850	85° x 85°	11000
	Heavy Stippled	48° x 48°	9750	95° x 95°	11200
	Spread	30° x 60°	10300	85° x 95°	10800
A-20—1500 Watt	None	25° x 25°	17000	80° x 80°	20200
	Plain	25° x 25°	15500	80°x 80°	18500
	Heavy Stippled	45° x 45°	17200	95° x 95°	18900
	Spread	25° x 55°	17600	80° x 90°	18600

*Approximate—for estimating purposes only.

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

SERVIS FLOOD



Servis Flood Floodlight with Hinged Cover and Post Top Mounting Bracket

Westinghouse Servis Flood is an inexpensive, light weight, weatherproof unit with a hinged door. It is specifically designed for the correct illumination of service stations.

A dual beam is the outstanding feature of the Servis Flood. Both a wide beam for general yard lighting with horizontal top cutoff and a narrow beam of light for highlighting the building are provided by means of a composite Alclad aluminum reflector. The lower half of this reflector has a polished surface; the upper half a diffused surface.

Specifications

Reflector — The one-piece reflector housing is spun from Alclad aluminum. The inner surface is compound finished, the lower half and back section being polished, the upper half being etched. The entire reflector is then treated by the Alzak process resulting in high efficiency reflecting surfaces and excellent protection against corrosion on all surfaces.

Reflector Extension — Cast aluminum with bayonet slots to engage directly with the bracket. It is attached to the reflector by four heavy bolts which extend, through lock and reinforcing washers, from the inside of the reflector and thread into the socket extension. A plastic non-hardening cement seals the joint between the reflector and extension.

Mounting Bracket—Consists of two main pieces: the mounting portion and socket hood. The mounting portion is cast iron. Post top mountings have wiring caps. Pipe clamp and crossarm mountings have bushed openings.

The socket housing is of cast aluminum alloy and is equipped with bayonet pins to engage and seat the reflector extension. A locking screw is provided to lock the assembly together. The socket is mounted on an aluminum plate and external focusing screws are provided for adjusting the high intensity beam laterally or for increasing or decreasing the beam spread

Wiring — Asbestos insulated wire of sufficient length for connections at the pole top or outside the bushed openings is supplied.

Door—The door is of the split-ring type, hinged at the top with a butt type hinge fitted with a removable pin. Three stainless steel spring latches hold the door firmly against an asbestos gasket that is cemented to a channel in the reflector.

Lenses—All lenses are of high transmission heat resisting glass.

Lamp Socket — Mogul screw base or medium bipost sockets are porcelain base with nickel plated metal parts.

Lamps — 300-500-watt PS bulb clear general service lamp or 400-watt type DH1 mercury lamp; 300-500-watt clear medium bipost base lamp and 750-1000-watt clear medium bipost base lamp.

Finish—Reflector housing, satin finish aluminum; extension housing and brackets, baked on silver enamel. All small metal parts are nickel plated.

SERVIS FLOODS—COMPLETE UNITS AND REFLECTORS

		For 2″ Post Top Mounting Complete Unit		For 1½″ Post Top Mounting Complete Unit		Reflector and Lens Assembly Only	
Type Lamp	Lens	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
Servis Flood for 500-watt Bipost type lamp	Plain	1120966	$44.00	1120965	$44.00	1120923	$32.00
	Spread	1120972	44.00	1120971	44.00	1120925	32.00
Servis Flood for 750-1000-watt Bipost type lamp	Plain	1120970	44.00	1120969	44.00	1120923	32.00
	Spread	1120976	44.00	1120975	44.00	1120925	32.00
Servis Flood for 300-500-watt PS40 lamp or 400-watt D-H1 mercury lamp	Plain	1120968	44.00	1120967	44.00	1120923	32.00
	Spread	1120974	44.00	1120973	44.00	1120925	32.00

Floodlight catalog numbers do not include lamps. List price lens only: Plain Lens, catalog No. **788177, $9.00.** Spread Lens, catalog No. **889309, $9.00.** Other mounting arrangements can be obtained by ordering reflector and lens assembly only (shipping weight 18 pounds) and bracket listed below.

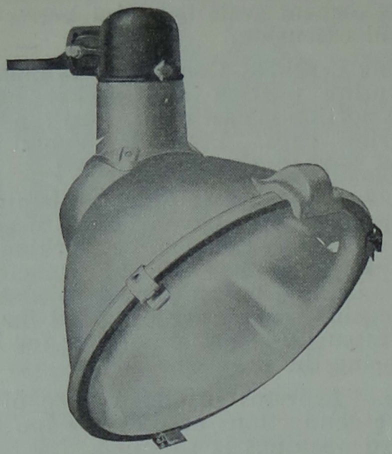
MOUNTING BRACKETS ONLY

For Use with Servis Flood Reflectors

	With Socket for 500-watt Bipost Lamp		With Socket for 750-1000-watt Bipost Lamp		With Socket for 300-500-watt PS40 or 400-watt D-H1 Mercury		
Bracket	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Ship. Wt., Lbs.
2″ Post Top	1120935	$12.00	1120937	$12.00	1120939	$12.00	12
1½″ Post Top	1120934	12.00	1120936	12.00	1120938	12.00	14
2″ and 2½″ Pipe Clamp	1120977	11.00	1120980	11.00	1120983	11.00	10
3″ and 3½″ Pipe Clamp	1120978	11.00	1120981	11.00	1120984	11.00	11
Cross-Arm	1120979	10.00	1120982	10.00	1120985	10.00	7

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

TYPE VHR-18 FLOODLIGHTS



Type VHR Floodlight with Snap Cover Glass and Cross-Arm Mounting Bracket

Westinghouse Type VHR-18 floodlights are inexpensive, light-weight units with or without snap cover glass. Typical applications include floodlighting of athletic fields, sports areas, service stations, construction projects, and industrial yards.

Units with snap cover glass are dust-tight and moisture-proof to prevent accumulations of dust and dirt on the reflecting surface. Efficiency is maintained without frequent cleaning.

A choice of narrow beam (polished) reflector or wide beam (diffuse) reflector with plain or diffusing lens, plus the use of clear or inside frosted lamps, provides a wide range of beam spreads for varying applications.

Bayonet heel construction on the reflector heel and matching construction in the mounting bracket permits wiring of bracket and socket hood without handling the reflector. Reflectors may be removed for storage or cleaning without throwing the floodlighting system out of focus.

Specifications

Reflector — The one-piece reflector housing is spun from Alclad aluminum and finished by the Alzak Process to provide a permanent and efficient reflecting surface, which may be easily cleaned and maintained.

The inner surface is first prepared by etching for all diffuse wide beam reflectors; by polishing for specular, narrow beam reflectors.

Socket Extension — A cast aluminum socket extension is rigidly attached to the reflector by four heavy bolts that extend from the inside of the reflector through lock and reinforcing washers, and thread into the socket extension.

A slotted bayonet heel is held by three bolts to the upper end of the socket extension to engage the bayonet pins on the mounting bracket.

A graphitized asbestos gasket is provided on the bayonet heel to give a weather-tight seal.

Mounting Bracket—Brackets for cross-arm, slip-fitter, pipe clamp, or conduit mounting are interchangeable for all sizes of VHR, AF and AFA reflectors. The socket housing portion of each bracket is arranged with three bayonet pins to engage and properly seat the bayonet heel of the reflector.

A ¾-inch turn seats the reflector heel in position. It is then locked in place by a thumb screw, which threads through the socket housing directly into the heel.

Wiring—Three feet of asbestos insulated wire is provided, except on pipe clamp and conduit brackets which are unwired.

Cover Glass—A nickel-plated copper lens holding ring is swiveled at the top of the reflector. A cast aluminum hood over the swivel joint makes it weather-tight.

Three stainless steel clamps spaced 120° apart provide the required pressure to seat the cover glass against the dry white asbestos gasket. A simple snap movement of the clamps permits easy opening and closing.

Lenses—Both plain and diffusing lenses are high transmission, heat-resisting glass.

Lamp Socket—Skeleton mogul screwbase sockets are provided with nickel-plated metal parts and spring phosphor-bronze center lamp contact.

Lamps—VHR-18 floodlights, open or closed, are for use with 750 to 1500-watt PS-52 lamps. Lamps are **not supplied** with the floodlights.

Finish—Reflectors are aluminum finished by the Alzak Process inside and out. Mounting brackets and socket housings are finished in green baked enamel. All nuts, bolts and washers are suitably plated to resist corrosion.

TYPE VHR-18—750 TO 1500 WATTS

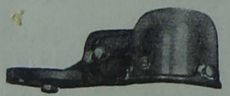
	Narrow Beam Unit				Wide Beam Unit					
	Complete Unit with Cross Arm Bracket		Reflector Only		Complete Unit with Cross Arm Bracket		Reflector Only		Cross Arm Bracket Only	
Lens	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
Plain	1119648	$47.00	1119649	$39.00	1119650	$40.00	1119651	$32.00	789859	$8.00
Diffusing	1119665	47.00	1119666	39.00	1119667	40.00	1119668	32.00	789859	8.00
None	1119652	32.00	1119653	24.00	1119654	25.00	1119655	17.00	789859	8.00

Other Mounting Brackets for VHR-18 Floodlights

Cat. No.	Description	Price Each
888282	1½-inch Post Top Bracket	$10.00
789862	2-inch Post Top Bracket	10.00
789863	2½-inch Post Top Bracket	10.00
888382	Duplex Bracket	26.00
789861	2-inch and 2½-inch Pipe Clamp Bracket	9.00
888355	3-inch and 4-inch Pipe Clamp Bracket	9.00
888283	1-inch Conduit Socket Hood	6.00

Replacement Lens

Cat. No.	Description	Price Each
1119170	Plain	$12.00
1119656	Diffusing	12.00



Cross Arm Mounting Bracket

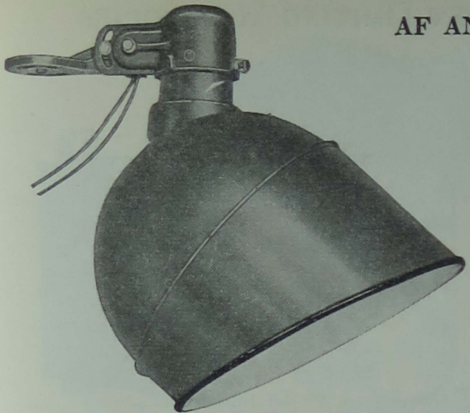
Pipe Clamp

Post Top Mounting Bracket

1-Inch Conduit Socket Hood

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

AF AND AFA OPEN TYPE FLOODLIGHTS



Typical AF or AFA Open Type Floodlight for Cross-Arm Mounting

Westinghouse AF and AFA Floodlights are sturdy, inexpensive, open type units for floodlighting open service and sport areas. Typical applications include service station, parking lot, football field, baseball field, softball field and tennis court lighting, as well as construction projects and industrial yards.

The AFA Floodlights differ from the AF Floodlights in that the AFA type utilizes an auxiliary aluminum reflector finished by the Alzak Process. This auxiliary reflector intercepts and concentrates a portion of the light to provide adequate illumination on the more distant as well as adjacent areas. Treatment of the auxiliary reflector by the Alzak Process produces a finish high in efficiency, easily cleaned and resistant to the corrosive action of weather.

Specifications

Mounting Brackets—Mounting brackets and socket housings are interchangeable for all sizes of AV, AF and AFA reflectors. Brackets for cross-arm, pipe clamp, slip fitter and conduit mounting may be furnished. The socket housing portion of each bracket is arranged with three bayonet pins to engage and seat the bayonet heel of the reflector. A three-quarter-inch turn seats the reflector heel in proper position. It is then locked in place by a set screw that threads through the socket housing directly into the heel. The set screw is in turn locked by a wing nut.

Wiring—Three feet of asbestos insulated wire are run from the socket housing arm for attachment to service line except on pipe clamp bracket, which is unwired.

Reflectors—Made from heavy gauge sheet steel finished with durable porcelain enamel. Over one ground coat of porcelain enamel, two coats of white enamel are applied on inside and one coat of green enamel on outside. Each coat is separately fired to assure maximum reflector efficiency and durability. Self-contained visor which is an integral part of reflector provides proper light cut off to eliminate blinding glare and provides maximum protection for lamp.

Auxiliary Alzak aluminum reflector used on the type AFA floodlights is held in position by three nickel-plated machine screws. Type AF can easily be made into a type AFA by simply adding the auxiliary reflector.

A slotted bayonet heel is held by three bolts to the socket extension in order to engage the bayonet pins on the bracket socket housing.

Lamp Socket—Skeleton Mogul screw base sockets have nickel-plated metal parts and spring phosphor-bronze center lamp contact.

Lamps—AF-16 and AFA-16 use 750 to 1500-watt PS-52 bulb. AF-20 and AFA-20 use 750 to 2000-watt PS-52 bulb.

Finish—Mounting bracket and socket housing are finished in green enamel baked on; the reflectors are also finished on the outside in green porcelain enamel.

TYPES AF-16 AND AFA-16—750-1500 WATT OPEN FLOODLIGHTS

	Complete Unit				Reflector Only		Bracket Only	
	Cat.	Wt. Lbs.*		Price	Cat.	Price	Cat.	Price
Description	No.	Net	Shp.	Each	No.	Each	No.	Each
AF-16, Cross Arm	**888055**	23	32	**$17.00**	**789922**	**$9.00**	**789859**	**$8.00**
AF-16, 2-inch Post Top	**888056**	23	32	**19.00**	**789922**	**9.00**	**789862**	**10.00**
AFA-16, Cross Arm	**888063**	25	33	**20.00**	**789923**	**12.00**	**789859**	**8.00**
AFA-16, 2-inch Post Top	**888064**	25	33	**22.00**	**789923**	**12.00**	**789862**	**10.00**

TYPES AF-20 AND AFA-20—750-2000 WATT OPEN FLOODLIGHTS

Description	Cat. No.	Net	Shp.	Price Each	Reflector Cat. No.	Price Each	Bracket Cat. No.	Price Each
AF-20, Cross Arm	**888071**	30	40	**28.00**	**789866**	**20.00**	**789859**	**8.00**
AF-20, 2-inch Post Top	**888072**	30	40	**30.00**	**789866**	**20.00**	**789862**	**10.00**
AFA-20, Cross Arm	**888076**	31	41	**31.00**	**789867**	**23.00**	**789859**	**8.00**
AFA-20, 2-inch Post Top	**888077**	31	41	**33.00**	**789867**	**23.00**	**789862**	**10.00**

*For duplex bracket with two reflectors, double the net and shipping weights.

Catalog Numbers for floodlights do not include lamps.

Other Bracket Types

Other mounting arrangements can be obtained by ordering reflector only, and bracket listed below:

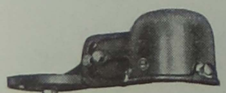
Cat. No.	Description	Price Each
888282	1½-inch Post Top Bracket	**$10.00**
789863	2½-inch Post Top Bracket	**10.00**
888382	Duplex Bracket	**26.00**
789861	2 or 2½-inch Pipe Clamp Bracket	**9.00**
888355	3 or 4-inch Pipe Clamp Bracket	**9.00**
888283	1-inch Conduit Socket Hood	**6.00**

Photometric Data‡

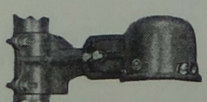
Unit	Lamp Watts	Beam Spread	Beam Lumens
AF-16	1500	128° x 125°	13915
AFA-16	1500	71.5° x 72°	14512
AF-20	2000	138° x 139°	19330
AFA-20	2000	53° x 55°	15790

‡Approximate for estimating purposes only.

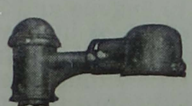
All data are for clear bulb lamps of rating indicated.



Cross Arm Mounting Bracket



Pipe Clamp



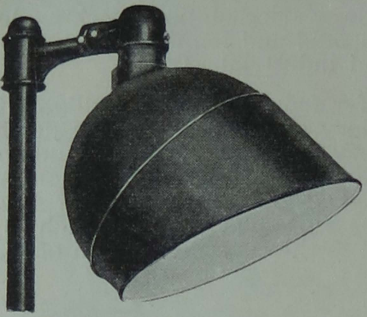
Post Top Mounting Bracket

1-Inch Conduit Socket Hood

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

HIGH INTENSITY MERCURY VAPOR FLOODLIGHTS

Type AFA-16



Type AFA-16 Floodlight with Post Top Bracket Arranged for Mercury Lamp. Transformer Remotely Mounted.

Mercury vapor floodlighting is well suited for general open areas and yards, where maximum light with minimum power consumption is important. Particularly desirable for service stations since High Intensity Mercury lamps produce about twice as much light per watt of electricity consumed as incandescent lamps. Another distinct advantage of the mercury vapor lamp is an unusual lighting effect where black, white, yellow, green or blue colors comprise the building decorations. Where either red or orange colors are involved, use of incandescent units on those surfaces will compensate for color distortion caused by high intensity mercury light.

Application of high intensity mercury light is also ideally suited to station modernization for replacing or for use in combination with present lighting installations.

The efficiency of the mercury light which produces high levels of illumination without increasing the wattage consumption automatically permits better lighting without rewiring costs or increased overhead.

Westinghouse AFA-16 floodlight reflector combines in one unit a large porcelain enameled reflector and an Alzak aluminum inner reflector.

Porcelain reflector is made of heavy sheet steel finished with durable porcelain enamel. Self contained visor which is an integral part of reflector provides proper light cut-off to eliminate blinding glare and provides maximum protection for lamp and produces a wide flood of diffused light over adjacent area.

Auxiliary Alzak reflector is made of heavy gauge Alclad aluminum sheet shaped to produce correct concentration of a portion of the lamp output into a narrow beam for lighting more distant areas with uniform distribution of light. It is held in position by three nickel-plated machine screws.

Mounting Brackets

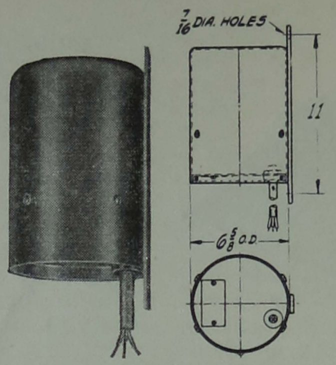
Mounting brackets and socket housings are interchangeable for VHR-18 and AFA-16 reflectors. Brackets can be furnished for the different arrangements.

Socket Housings

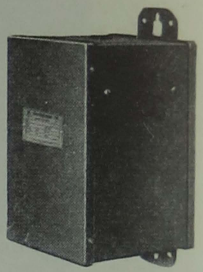
Socket housing portion of each bracket is arranged with three bayonet pins to engage and seat the bayonet heel of the reflector. A ¾-inch turn seats the reflector heel in proper position. It is then locked in place by a thumb screw that threads through the socket housing directly into the heel. Thumb screw is in turn locked by a wing nut.

Prices on request.

CURRENT LIMITING ACCESSORIES



Outdoor Aerial Type Transformer or Reactor Units



Indoor Wall Mountng Type Transformer

High Intensity Mercury lamps will operate only on alternating current circuits. Due to the difference in initial starting voltage required for the lamp and the final operating voltage, a high reactance transformer or reactor is required for each lamp.

The starting and operating voltages of the 400-watt mercury lamp are such that if service provides 220- to 240-volt range at the fixture, each lamp should be connected in series with a reactor. Service of 107- to 123-volt range requires a transformer.

The transformers and reactors are equipped with several line taps to meet variations in line voltages since it is most important that the wattage input to the lamp be closely regulated.

Due to the use of high internal reactance transformers and reactors, the power factor is reduced to approximately 65% with the transformer and approximately 60 to 70% with the reactor, depending on the voltage tap used. To correct the line power factor, it is recommended that a capacitor be added which will raise it to approximately 90 to 95%. Capacitor is mounted directly on the transformer or reactor in a common case.

Transformer-capacitors can be supplied for different mounting arrangements both in outdoor and indoor types. The more popular of the two outdoor types is where the transformer capacitor is a part of, or is mounted directly on, the floodlight bracket, the other being the separate aerial type which mounts on the side of the pole where cross arm or side pole types of brackets are used.

When transformers are installed in the building, a less expensive unit of the indoor type can be used. However, when indoor transformers are used, additional wiring is required between floodlights and transformers, as units cannot be operated in parallel, thus necessitating separate leads for each unit. This is often convenient where part-night operation of some units is desired.

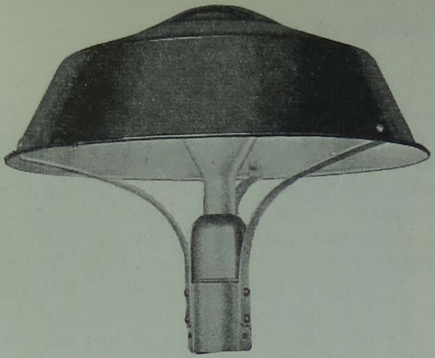
All types of transformers have a terminal board which is easily accessible—only requiring removal of nameplate or two small screws on transformer case. Special spring snap terminals are used for line tap connection, thus eliminating soldered and taped joints. The change from one primary tap to another can be made quickly without aid of tools. Equipped with solderless connectors.

Transformer Capacitor Units For 107-115-123-Volt, 60-Cycle Line

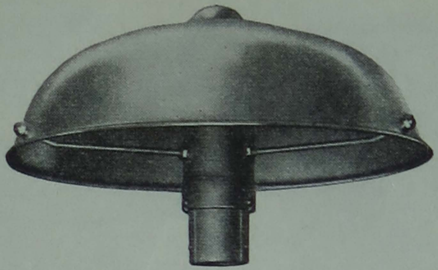
Cat. No.	Mounting Arrangement	Shpg. Wt. Lbs.	Price Each
889136	Outdoor Aerial Mounting	30	$34.00
1120073	Indoor Wall Mounting	30	15.00

WESTINGHOUSE FLOODLIGHTING EQUIPMENT

ISLAND AND AREA LUMINAIRES



Island Luminaire for PS Lamp with Porcelain-Enameled Reflector—Catalog Numbers: 889350, 891566 and 1119768



Island Luminaire for Medium Bipost Lamp with Alzak Aluminum Reflector—Catalog Numbers: 892925 and 892926

Westinghouse Island and Area Luminaires provide the proper quantity and distribution of general or supplementary local lighting in a wide variety of locations such as: gasoline pump islands, safety islands, parking and housing areas, play areas, loading platforms, parks and drives.

Highly efficient and relatively inexpensive, they build up high levels of illumination wherever it is desired to provide wide light distribution in all directions from low-mounted luminaires.

The method of lamp positioning in Westinghouse Island and Area Luminaires results in a distinctive and graceful appearance. Available in a range of colors, they harmonize well with various designs of standards and with practically any surrounding color scheme.

Designed along natural "mushroom" lines, the lamp filament position is high in the reflector resulting in minimum glare and maximum output.

Strong supports and heavy gauge beaded reflectors make the units sturdy and durable. All units use one-piece reflectors with bead turned inward and without any openings in upper sections, shedding water and moisture. There are no raw unfinished edges, detachable top sections, or other possible corrosion points.

Inner back connections on the bipost and screw base lamp sockets provide easy access for wiring. Porcelain units are relamped without dismantling. Bipost units are relamped by loosening two screws and removing the reflector assembly. The lamp is left exposed and the reflector is in position for easy cleaning.

Island and Area Luminaires provide maximum light at minimum cost by downward reflection and by locating the light source close to the area to be lighted.

Although standard recommended mounting height for Island and Area Luminaires averages 12 feet above grade, and these units are sometimes used as high as 15 feet, the extremely wide light distribution of the bipost units, in particular, makes them effective at mounting heights as low as 8 feet above grade.

Specifications

Porcelain reflectors are one-piece seamless steel, porcelain enameled finish, with white inside and red or green outside. On special order other colors such as blue, gray, or white can be furnished. Aluminum reflectors are one-piece, spun from aluminum, etched and finished by the Alzak process for high diffusion and permanence. The contour of these reflectors has been carefully worked out for widest distribution at low mounting heights.

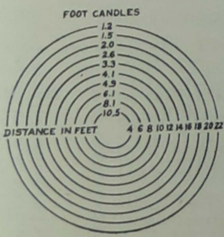
On units for PS type lamps the housing consists of a spun aluminum cap, etched Alzak finish, which fits snugly around the lamp neck and slips over the fitter casting, to exclude bugs, dirt, and excessive moisture. Housings of units for bipost type lamps consist of a cast-iron hub, finished with metallic aluminum paint with cadmium plated support rods and cap nuts. Housings are available either with or without glare shield of Alzak Processed spun aluminum.

For PS type units the fitter casting is cast iron, in white enamel finish, designed for slip-fit over any unthreaded 2-inch pipe. Fitter is locked in place by three set screws.

Fitter casting used with bipost type units is cast iron, finished with metallic aluminum paint, designed for slip-fit over unthreaded 2-inch pipe. Fitter is locked in place by three set screws.

Lamp sockets for PS lamps are porcelain mogul screw base with all metal parts nickel plated and with spring phosphor-bronze center contact.

Bipost units use medium bipost socket of approved type with nickel-plated metal parts.



Porcelain Enameled Reflectors

Complete Unit

Watts	Type	Outside Finish	Complete Unit Cat. No.	Complete Unit Shpg. Wt. Lbs.	Complete Unit Price Each	Reflector Only Cat. No.	Housing Only Cat. No.
300–500	PS	Green	**889350**	15	**$11.00**	**889345**	**889349**
300–500	PS	Red	**891566**	15	**11.00**	**890960**	**889349**

Alzak Processed Aluminum Reflectors

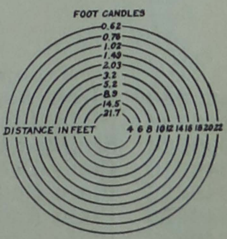
Without Glare Shield

Watts	Type	Outside Finish	Complete Unit Cat. No.	Complete Unit Shpg. Wt. Lbs.	Complete Unit Price Each	Reflector Only Cat. No.	Housing Only Cat. No.
300–500	PS	Alzak	**1119768**	14	**13.50**	**892201**	**889349**
500	Med. Bipost	Alzak	**892926**	14	**13.50**	**1119662**	**892932**

With Glare Shield

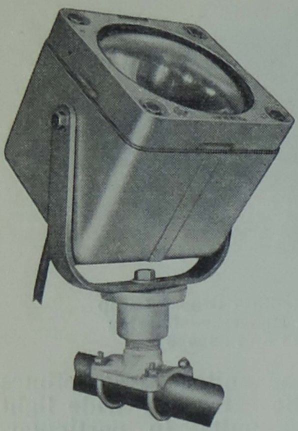
Watts	Type	Outside Finish	Complete Unit Cat. No.	Complete Unit Shpg. Wt. Lbs.	Complete Unit Price Each	Reflector Only Cat. No.	Housing Only Cat. No.
500	Med. Bipost	Alzak	**892925**	14	**14.50**	**1119662**	**892931**

Prices do not include lamps.



WESTINGHOUSE FLOODLIGHTING EQUIPMENT
AQUALUX UNDERWATER FLOODLIGHTS

TYPE WF-8—FOR FOUNTAINS



Type WF-8 Aqualux Floodlight with 1½-Inch Pipe Clamp Base

Type CF-10 Aqualux Floodlight with Bow and Triangular Base (another type which is standard and more expensive)

Westinghouse Type WF-8 Aqualux Floodlights are designed for underwater use in fountains, small pools, waterfalls and similar installations. Different types of control and color lenses provide a wide variation of beautiful effects. A special thermo-pressure treatment eliminates water seepage into unit, making it watertight. Unit requires no drainage or ventilation. Low installation cost with minimum for maintenance.

Caution—Aqualux Units should not be operated unless completely submerged in water. Cast aluminum should not be used in treated or salt water.

Specifications

Body—The one-piece body is made of heavy, non-corrosive cast aluminum. Seepage and condensation are eliminated by a special thermo-pressure treatment which makes the body watertight.

Door—Door frame and lens-holding ring are made of cast aluminum. Lens is held firmly in frame under pressure between two heavy rubber gaskets. A third rubber gasket between door assembly and body makes a watertight unit.

Lens—Convex lens is made of heavy, heat-resisting glass. Three types of lenses are available: plain, rectilinear spread and stippled. All types are available in clear, red, amber, green and blue.

Reflector—The one-piece reflector is spun from Alclad aluminum. Inner surface is then treated by the Alzak Process.

Lamp Socket—Medium screw base porcelain socket with nickel-plated metal parts and spring phosphor-bronze center lamp contact. It is mounted directly on a socket base integral with the case which gives a fixed focus.

Lamps—250-watt, G-30 bulb floodlight lamp; or 400-watt, G-30 bulb projection or floodlight lamp can be used with the Alzak-processed aluminum reflector and clear lenses, but the 400-watt lamp should NOT be used with glass reflector or colored lenses.

Wiring—Fifteen feet of three-conductor rubber-covered cable is brought in through a watertight packing to facilitate lifting of unit to the surface. The third conductor provides means for grounding the case.

Weight—Shipping weight, 35 pounds.

Type WF-8 Aluminum* Floodlight with Alzak Processed Reflector†

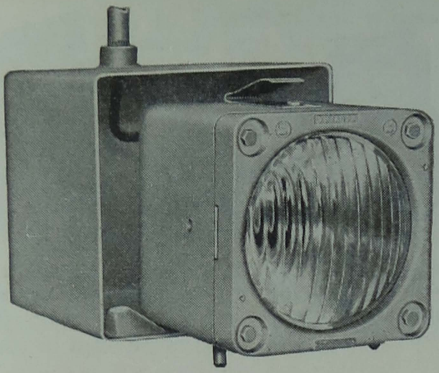
	With Supporting Legs		With 1½-inch Pipe Clamp Base		With 1¼-inch Pipe Mounting and Floor Flange		With Bow and Flat Triangular Base	
Description	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
Plain Clear	892017	$48.00	892032	$53.00	892047	$53.00	892074	$53.00
Stippled	892018	48.00	892033	53.00	892048	53.00	892075	53.00
Rectilinear Spread	892019	48.00	892034	53.00	892049	53.00	892076	53.00
Plain Red	892020	51.00	892035	56.00	892050	56.00	892077	56.00
Plain Amber	892021	51.00	892036	56.00	892051	56.00	892078	56.00
Plain Green	892022	51.00	892037	56.00	892052	56.00	892079	56.00
Plain Blue	892023	51.00	892038	56.00	892053	56.00	892080	56.00
Red Rectilinear Spread	892024	51.00	892039	56.00	892054	56.00	892081	56.00
Amber Rectilinear Spread	892025	51.00	892040	56.00	892055	56.00	892082	56.00
Green Rectilinear Spread	892026	51.00	892041	56.00	892056	56.00	892083	56.00
Blue Rectilinear Spread	892027	51.00	892042	56.00	892057	56.00	892084	56.00
Red Stippled	892028	51.00	892043	56.00	892058	56.00	892085	56.00
Amber Stippled	892029	51.00	892044	56.00	892059	56.00	892086	56.00
Green Stippled	892030	51.00	892045	56.00	892060	56.00	892087	56.00
Blue Stippled	892031	51.00	892046	56.00	892061	56.00	892088	56.00

Accessories

Cat. No.	Description	Ship. Wt. Lbs.	Price Each	Cat. No.	Description	Ship. Wt. Lbs.	Price Each
889038	Alzak Aluminum Reflector	3	$8.00	349611	Red Rectilinear Spread Lens	5	$7.50
349624	Plain Clear Lens	5	4.50	349612	Amber Rectilinear Spread Lens	5	7.50
890984	Stippled Lens	5	4.50	349613	Green Rectilinear Spread Lens	5	7.50
349610	Clear Rectilinear Spread Lens	5	4.50	349614	Blue Rectilinear Spread Lens	5	7.50
349625	Plain Red Lens	5	7.50	890985	Red Stippled Lens	5	7.50
349626	Plain Amber Lens	5	7.50	890986	Amber Stippled Lens	5	7.50
349627	Plain Green Lens	5	7.50	890987	Green Stippled Lens	5	7.50
349628	Plain Blue Lens	5	7.50	890988	Blue Stippled Lens	5	7.50

WESTINGHOUSE FLOODLIGHTING EQUIPMENT
AQUALUX UNDERWATER FLOODLIGHTS

TYPE WS-8—FOR SWIMMING POOLS



Type WS-8 Floodlight Partially Removed from Wall Receptacle

Westinghouse Type WS-8 Aqualux Floodlight provides excellent underwater floodlighting for pools approximately 50 feet or less in width and gives all the advantages of the wet niche system of underwater floodlighting. To eliminate water seepage into the unit a special thermo-pressure treatment is used, making a watertight unit which requires neither drainage nor ventilation.

This self-contained unit provides low installation cost and minimum maintenance expense. It can easily be removed to the surface of the pool for relamping or servicing and set back into place without the trouble and expense of draining the pool.

Caution—Aqualux Units should not be operated unless completely submerged in water. Cast aluminum units cannot be used in treated or salt water.

Specifications

Body—The one-piece body is made of heavy, non-corrosive cast bronze. Seepage is eliminated by a special thermo-pressure treatment which makes the body watertight.

Door—The door frame and lens-holding ring are made of cast bronze. The lens is firmly held in the frame under pressure between two heavy rubber gaskets. A third rubber gasket between the door assembly and body makes a watertight joint and a watertight unit.

Lens—The convex lens is made of heat-resisting glass. Four types of lenses are available: plain, rectilinear spread, stippled and rectilinear tilting spread. All types are available in clear, red, amber, green and blue colors.

Reflector—The one-piece reflector is spun from Alclad aluminum. The inner surface is polished and then treated by the Alzak Process.

Mounting—In bronze recess box or receptacle cemented into wall or in a niche by means of positioning inserts; also on brackets in pools already constructed.

Lamp Socket—Medium screw base porcelain socket with nickel-plated metal parts and spring phosphor-bronze center lamp contact. It is mounted directly on a socket boss integral with case which gives a fixed focus.

Lamps—250-watt, G-30 bulb floodlight lamp; or 400-watt, G-30 bulb projection or floodlight lamp can be used with the Alzak processed aluminum reflector and clear lenses but the 400-watt lamp should NOT be used with glass reflectors or colored lenses. The floodlight must be submerged in water when the lamp is burning.

Wiring—Fifteen feet of three-conductor rubber-covered cable is brought through a watertight packing gland to facilitate lifting of unit to the surface. The third conductor provides means for grounding the case. The cable can be conveniently coiled within the bronze floor box when the unit is in place.

Type WS-8 Bronze* Aqualux with Positioning Feet and with Alzak Processed Reflectors‡

For Niche or Receptacle Mounting

Cat. No.	Type Lens**	Ship. Wt., Lb.	Price Each
892064	Plain clear	40	**$55.00**
892065	Rectilinear spread	40	**55.00**
892066	Stippled	40	**55.00**
892067	Rectilinear tilting spread	40	**55.00**

* Cast aluminum units can be supplied for use in untreated fresh water at a reduction of **$10.00** in list price.

‡ Silvered glass reflectors can be supplied at no increase in price when specified.

** Red, amber, green and blue color lenses can be supplied at an increase of **$3.00** in list price. Specify color and whether plain, rectilinear spread, sttippled, or rectilinear tilting spread is desired.

Accessories for Type WS-8 Floodlight

Cat. No.	Description	Ship. Wt., Lb.	Price Each
892223	Positioning inserts (1 set required)	3	**$ 0.70**
892224	Bronze receptacle	40	**30.00**
888143	Cable floor box for 1-inch conduit straight through wiring†	15	**12.50**
888144	Cable floor box for 1¼-inch conduit straight through wiring†	15	**12.50**
888145	Cable floor box for 1½-inch conduit straight through wiring†	15	**12.50**
349624	Plain clear lens	5	**4.50**
349610	Clear rectilinear spread lens	5	**4.50**
890984	Clear Stippled lens	5	**4.50**
349621	Clear rectilinear tilting spread lens	5	**4.50**
889038	Alzak processed aluminum reflector	3	**8.00**

† Special tapping can be supplied at a slight increase in price.

CROUSE-HINDS LIGHTING UNITS

TYPE RCD-8 LIGHTING UNITS

Type RCD-8 — Form F Floor Mounting

Type RCD-8 — Form W Wall Mounting with Hinged Door and Grid

Type RCD-8 lighting unit is designed for mounting in concrete. It is made in two styles: one for floor mounting and the other for wall mounting.

Form F for Floor Mounting: Type RCD-8, Form F is designed for mounting in the floor. It is watertight, with a door that overlaps the case, and yet the projection above the concrete is only about 3/16 of an inch. The surface of the door has a rough pebbled surface which prevents it from becoming slippery. It is provided with a wide, flat gasket between the door and case.

It is provided with a flat lens which is heavy enough to allow it to be stepped on or driven over and offers great resistance to tools or other articles that might be dropped on it. It can also be furnished with a type of glass lens which has been heat treated to increase its resistance both to impact and to a static load. It is approximately four times as strong as any other heat-resisting glass, and is practically unbreakable under any conditions normally encountered. This special glass is available only in the plain type.

Form W for Wall Mounting: Type RCD-8, Form W is similar to Form F except it is provided with a hinged and flush door, so that it can be set absolutely flush with a concrete wall. It can also be mounted on a ceiling or wall by using the brackets listed separately. This unit provides perfect lighting for pits, underpasses, tunnels, and washracks. The refracting lenses can be set to refract the light either up or down.

Applications

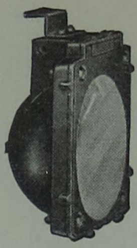
Automobile Lifts: Type RCD-8, Form F units installed under a lift provide perfect lighting of a high intensity, thereby speeding up the operations of greasing and repairing cars. Wheel type lifts are those in which the car is driven onto two trough-shaped tracks and the car rests on its wheels. This type can usually be lighted with two units mounted on the center line. The axle lifts are those which raise the car with girders under the axles, leaving the wheels free. This type must usually be lighted with four units mounted two on each side, in order to eliminate shadows cast by the girders or frame of the lift.

Pits: Type RCD-8, Form W is recommended. It can be installed absolutely flush with the concrete wall. Units should be mounted as close to the top of the pit as possible. Pits which are considered hazardous locations should be lighted with Type RCDE-8 explosion-proof pit lights (prices on request).

CROUSE-HINDS LIGHTING UNITS

TYPE RCD-8 LIGHTING UNITS

Schedule F



Type RCD-8 With "Z" Bracket for Attaching to Ceiling

Type RCD-8 — Form W With Frame and Grid

Applications

Underpasses and Tunnels: Type RCD-8, Form W units can be installed in the side walls or the ceiling of an underpass or tunnel. For side wall mounting, the units should be mounted 10 to 12 feet above the roadway, with refracting lenses turned so as to project the light downward. For ceiling mounting, plain lenses should be used, except in the case of one-way traffic, when the refracting lenses can be used for projecting the light in the direction of traffic. The spacing and number of units required for any installation depends on the width of the roadway and the intensity desired. Complete recommendations for lighting any underpass or tunnel will be given on receipt of detailed plans.

Washracks: Type RCD-8 units provide effective lighting for automobile washracks. The units can be mounted in the side walls and will provide high intensity lighting on the sides of the cars. The units should be installed on 4 to 6-foot centers with one row of units mounted 7 to 8 feet high, with refracting lenses set to project the light downward; and another row installed in the wall near the floor, with refracting lenses for projecting the light upward. Complete recommendations for lighting any washrack will be given on receipt of detailed installation plans.

Type RCD-8 — Form W Wall Mounting

Style	With Plain Lens Cat. No.	With Plain Lens List, Each	With Refracting Lens Cat. No.	With Refracting Lens List, Each
With Grid	41409	$20.00	41410	$20.00
Without Grid	41332	19.00	41334	19.00

Type RCD-8 — Form F Floor Mounting

With Impact-Resisting Glass	41427A	20.00	....	....

BRACKETS AND FRAME

For Type RCD-8 Lighting Units

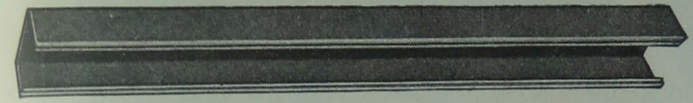
Cat. No.	Description	List, Each
HL4242	"L" Bracket	$1.00
HL4243	"Z" Bracket	1.00
HL5194	Frame for Form W only	5.00

Prices do not include incandescent lamps.

PARTS FOR FLUORESCENT CURTISTRIP

The contractor can make up his own fluorescent fixtures from the parts below. This will be desirable for lengths longer than 10 feet or if unfinished parts may be used, in installations where equipment will be concealed, and in certain applications.

STANDARD CURTISTRIP CHANNEL
(Rust-Resisting Finish)

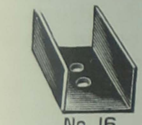


Channel and cover are made of 20 gauge cold-rolled steel, size 2½ inches wide and 1⅝ inches deep. All covers are machine-scored at intervals of 3 inches along the entire length.

Cat. No.	Description	Lgths.	Std. Pkg.	Shpg. Wt.Lbs.	Price Per Ft.
1	Channel with cover	10′	100′	130	**$0.40**
1-A	Channel only	10′	100′	115	**.35**
1-B	Cover only	10′	100′	40	**.10**

FINISHED CURTISTRIP—CHANNEL ONLY
(Satin Silvertone Finish)

Cat. No.	Description	Lgths.	Std. Pkg.	Shpg. Wt.Lbs.	Price Each
1-C	Channel only	10	5	....	**$5.00**


No. 16

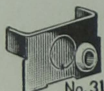
NO. 16 COUPLING

Cat. No. 16 coupling for connecting two pieces of CurtiStrip channel.

Price, No. **16** Coupling......each **$0.30**

CURTISTRIP END CAPS

No.6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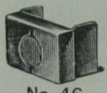

No.46

No.501

Both decorative end castings and plain end caps are available. The end castings, besides giving a finished appearance, provide means of support when CurtiStrip is suspended from ends of channel.

Cat. No.	Description	Std. Pkg.	Shpg. Wt.Lbs.	Price Each
6†	Plain End Cap	10	3	**$0.20**
31†	Plain Bushed End Cap	10	3	**.20**
46†	Extended End Cap	10	3	**.25**
501*	Decorative End Casting	10	6	**.75**

†Cadmium plated. Use No. 46 in place of No. 6 where wire connection is to be made through end of CurtiStrip.

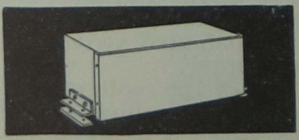
*Finished Satin Silvertone.

SOCKET-REFLECTOR SUPPORTS*

Cat. No.	Finish	Std. Pkg.	Shpg. Wt.Lbs.	Price Each
782	Plain	10 Sets	3	**$0.55**
787	Aluminum Lacquer	10 Sets	3	**.65**

*Ballast holder straps, No. 181, not included.

HOUSING FOR TWO-LAMP BALLAST



Catalog No. 159. Two-lamp Ballast Housing for two 30-watt lamps or two 40-watt lamps. (Ballast not included) **$2.85**

PARTS FOR FLUORESCENT CURTISTRIP

FILL-IN COVER

Machine-scored at 3-inch intervals.

Cat. No.	Length Inches	Finish	Std.Pkg. Lengths	Price Each
797	39	Aluminum Lacquer	20	**$0.70**
573	24	Satin Silvertone	10	**.40**

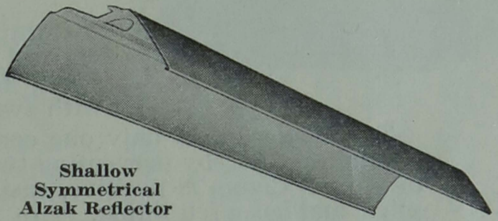
BALLAST HOLDER STRAPS

Two ballast holder straps are needed when ballast is mounted in CurtiStrip, except when a large cross-section 30- or 40-watt two-lamp ballast is used, which requires a separate housing.

Price, No. **181** Ballast Holder Strap..................**$0.15**

No. 9 Strap For holding Curtistrip against any flat surface ....each **$0.10**

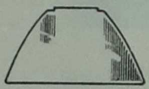
REFLECTORS

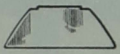

Shallow Symmetrical Alzak Reflector

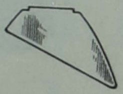
These reflectors are made of Alzak aluminum and their contours reflect the light of the fluorescent lamp with maximum efficiency. Provided with knockout for starter.

Length Inches	Std. Pkg.	Deep Symmetrical Semi-Concentrating Cat. No.	Deep Symmetrical Semi-Concentrating Price Each	Shallow Symmetrical Distributing Cat. No.	Shallow Symmetrical Distributing Price Each	Asymmetrical Directional Type Cat. No.	Asymmetrical Directional Type Price Each
18	10	**102**	**$2.65**	**114**	**$1.75**	**106**	**$2.15**
24	10	**103**	**3.35**	**115**	**2.10**	**107**	**2.65**
36	10	**104**	**4.70**	**116**	**3.55**	**108**	**3.95**
48	10	**105**	**6.45**	**117**	**5.45**	**109**	**5.95**

REFLECTOR END PLATES





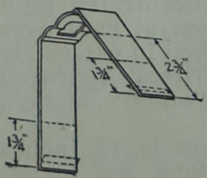


These die cast end plates, if used, close ends of the reflectors and provide extra strength and rigidity.

Cat. No.	Type	Price Each
502	Deep Symmetrical	**$1.00**
503	Shallow Symmetrical	**.70**
504	Asymmetrical (right end)	**1.05**
505	Asymmetrical (left end)	**1.05**

Standard package of each is 10.

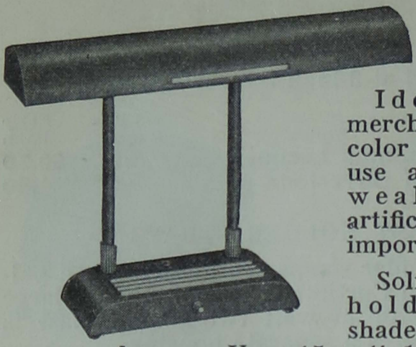
REFLECTOR CONNECTOR



In continuous runs of all types of reflector assemblies between reflectors, connectors should be used to cover reflector joint. The connector is a soft metal strap which fits over two adjoining sockets and is bent over reflector, making a neat joint and preventing light leakage. No. 129 is used with all types of reflectors.

Price, No. **129** Connector (std. pkg. 20)........**$0.20**

VAN DYKE FLUORESCENT LAMPS



MODEL NO. 1000

Ideal for offices, merchandise display, color matching, home use and wherever a wealth of glareless artificial daylight is important.

Solid bronze pen holder, adjustable shade and finished in morocco brown. Uses 15-watt 18-inch tube.

Price, Model **1000**, less tube........................**$12.75**

MODEL NO. 1275

←Adjustable Joint

Completely wired and ready to use with switch.

The shade makes only one complete revolution, thereby preventing twisting of wires. Clamp is positive, easily applied, and has a felt lining.

Standard finish is baked morocco brown with baked "Colortone" reflector. 18-inch shade, 24 inches high.

No. 1275, less tube **$12.75**

No. 1276 for 20-watt tube; less tube, ... **15.00**

Either of the above models can be supplied with 24-inch arm extension at **$1.00** extra. A.C. or D.C., same price.

MITCHELL FLUORESCENT LAMPS

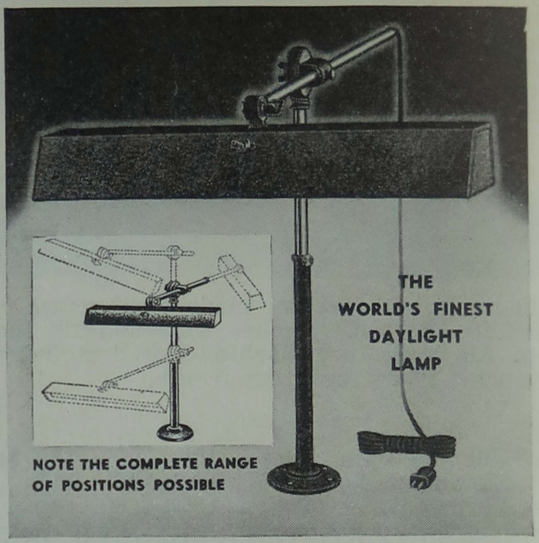
MODEL NO. 2050 DESK LAMP

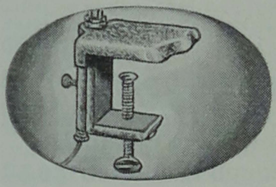
A handsome lamp, rich and graceful in design — sturdy and substantial — with a miraculously high lighting performance. The parabolic-shaped, chip-proof white enamel reflector concentrates light forward to provide an even and useful light over an entire desk area. Lamp is finished in extremely durable Morocco brown. Underwriters' Approved materials. Instantaneous-action "on-off" switch. Convenient pen trough.

Stands 14½ inches high. Shade is 18 inches long. Base measures 10 inches long, 5¼ inches wide. Complete with cord and plug. For 110-125 volt, 60 cycles, A.C., unless D.C. is specified. Individually packed. Shipping weight, 12 pounds.

Price, No. **2050** Desk Lamp (less bulb) **$5.95**

MITCHELL FLUORESCENT DAYLIGHT BENCH LAMP


THE WORLD'S FINEST DAYLIGHT LAMP
NOTE THE COMPLETE RANGE OF POSITIONS POSSIBLE



Furnished with Clamp-on mounting with adjustable screw opening to maximum of 2 inches.

Shade, upright arm, and supporting arm are fully adjustable, and can be quickly moved to any position to suit the user's convenience. Shade is 18 inches long. Upright arm adjustable from 14 to 26 inches. Horizontal arm adjustable up to 16 inches.

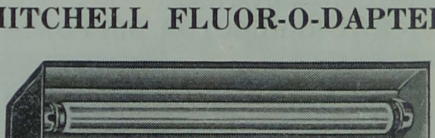
Substantially constructed to give a lifetime of use. Approved type reactor built into shade. High efficiency enameled reflector. Durably finished in baked Morocco brown with cadmium plated trim. Conveniently located toggle on-off switch. 9 feet of Underwriters' approved cord and unbreakable rubber plug.

Furnished for 110-120 volt, 60 cycle, AC., unless DC specified.

Packed one to a shipping carton; weight 8 lbs.

Price, No. **1112** Fluorescent Daylight Bench Lamp (less bulb) **$8.95**

MITCHELL FLUOR-O-DAPTER



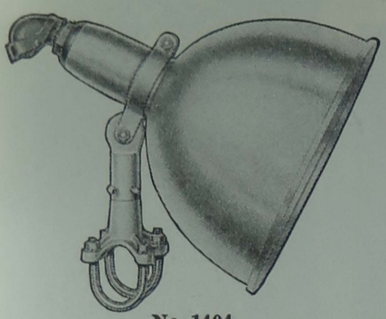
For use with two 18-inch, 15-watt Fluorescent lamps. Dimensions: 18 inches long, 7¼ inches wide, 4 inches high. Furnished complete with built-in ballast and automatic starter of the very latest type. The patented swivel plug is a feature of the Fluor-O-Dapter.

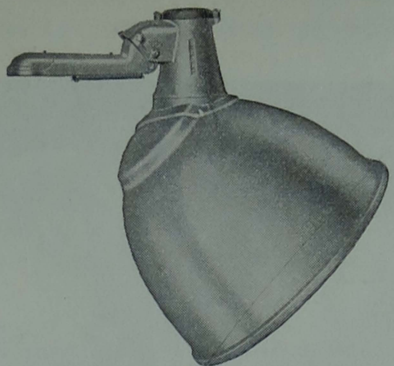
Operates on 110-120 volt, 60 cycle, AC only. Packed one to a carton; shipping weight 7 pounds.

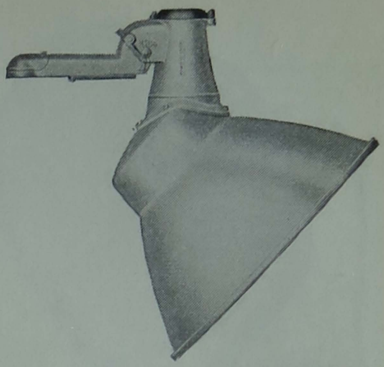
Price, No. **2008** Fluor-O-Dapter (less bulb)....**$9.95**

Price includes a pair of 8-ft. hanging chains, for use where a more permanent installation is desirable.

S & M "RED CAP" FLOOD-LITES


No. 1404


No. 952-CA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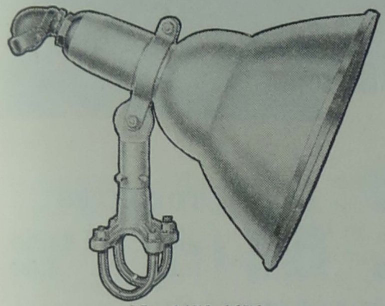
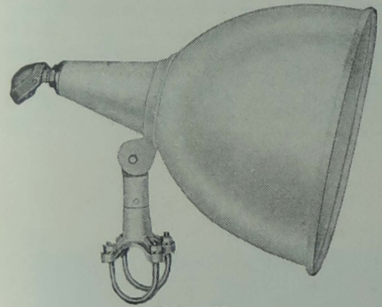
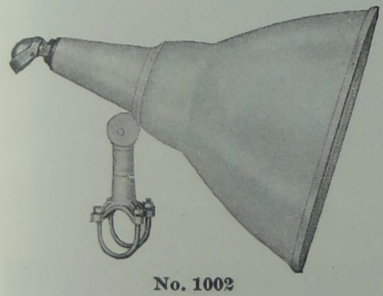

No. 1454-1474


No. 902


No. 1002

"ALZPORT" SERIES—ALZAK ALUMINUM

750-1500 Watt

Unit No.	Description	Diam.	Finish	Beam Spread	B&S Gauge	Price Each
952-CA	Cross Arm Bracket....	18″	Matte	100°	14	**$25.00**
952-CB	1½″-2″ Pipe Bracket	18″	Matte	100°	14	**26.00**
952-SF	1½″ Slip-Fitter	18″	Matte	100°	14	**27.00**
952-DSF	Duplex Slip-Fitter	18″	Matte	100°	14	**52.00**
1052-CA	Cross Arm Bracket....	20″	Matte	65°	14	**25.00**
1052-CB	1½″-2″ Pipe Bracket	20″	Matte	65°	14	**26.00**
1052-SF	1½″ Slip-Fitter	20″	Matte	65°	14	**27.00**
1052-DSF	Duplex Slip-Fitter	20″	Matte	65°	14	**52.00**
1072-CA	Cross Arm Bracket....	20″	Specular	15°	14	**32.00**
1072-CB	1½″-2″ Pipe Bracket	20″	Specular	15°	14	**33.00**
1072-SF	1½″ Slip-Fitter	20″	Specular	15°	14	**34.00**
1072-DSF	Duplex Slip-Fitter	20″	Specular	15°	14	**66.00**

NO. 1400 SERIES—ALZAK ALUMINUM

300-500 Watt

Unit No.	Description	Diam.	Finish	Beam Spread	B&S Gauge	Price Each
1404*	Open Type (no lens)	14½″	Matte	110°	16	**$16.00**
1407*	With Lens	14½″	Matte	110°	16	**22.00**
1454*	Open Type (no lens)	14½″	Matte	70°	16	**16.00**
1457*	With Lens	14½″	Matte	70°	16	**22.00**
1474*	Open Type (no lens)	14½″	Specular	28°	16	**21.00**
1477*	With Lens	14½″	Specular	28°	16	**27.00**

"ILLUMINOUS PROCESS"—OPEN TYPE ONLY

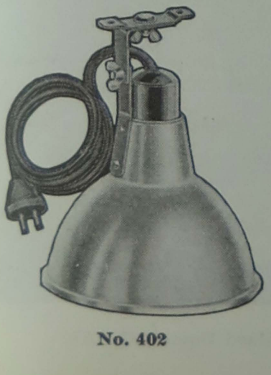
750-1500 Watt

Unit No.	Description	Diam.	Finish	Beam Spread	B&S Gauge	Price Each
902*	Open Type (no lens)	18″	Matte	90°	14	**$20.00**
1002*	Open Type (no lens)	20″	Matte	60°	14	**20.00**

*Bracket No. 604 (for 1½-inch or 2-inch pipe) is standard equipment. For the 1400 Series, Bracket Nos. 608 (for cross arm) or 628 (slip-fitter) can be furnished when specified, at no extra charge.

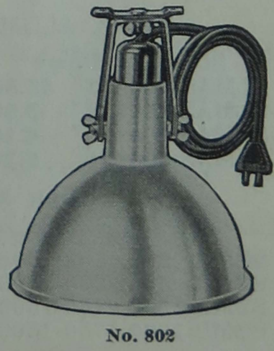
For Nos. 902-1002, Brackets Nos. 612 (for cross arm) or 618 (slip-fitter) can be furnished at no extra charge.

"RED CAP" PORTABLE FLOOD-LITES

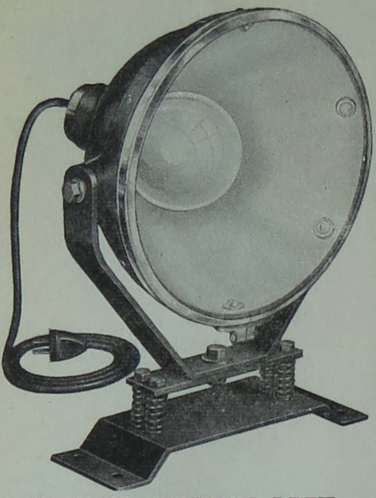

No. 402

Unit No.	Description	Price Each
402	Open Type, 60-100 W., 7½″ diameter	**$3.50**
40017-CR	Lens and Clamping Ring........................	**2.10**
424	Color Discs (4 colors) and Ring...........	**.95**
802	Open Type, 150-200-300 W., 9¾″ dia.	**3.95**
80017-CR	Lens and Clamping Ring........................	**4.10**
824	Color Discs (4 colors) and Ring...........	**1.25**

Nos. 402 and 802 Flood-Lites are equipped with four feet of rubber cord and plug.


No. 802

S & M "RED CAP" ALZAK ALUMINUM INDUSTRIAL REFLECTORS AND SPECIAL LITES

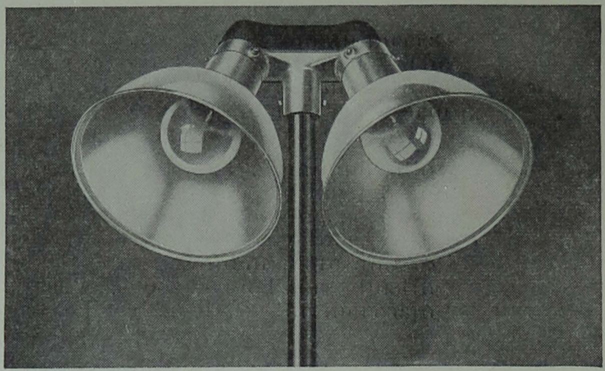


POWER SHOVEL-LITE

A wide flare of powerful light is provided by the Alzak Spun Aluminum Reflector.

4-ft. heavy duty rubber cord and plug.

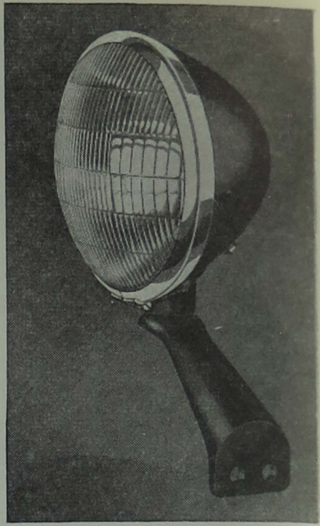
No. 834 10-inch **$25.00**



DUPLEX PLAY-LITE—ALZAK

With two reflectors and wired sockets. Easy to install. Especially designed for Badminton; also, ideal for other sports and commercial lighting.

No. 808 Play-Lite, For 1″ Pipe **$11.00**



TRACTOR-LITES

No. 59	6-inch	**$4.50**
No. 79	7-inch	**6.50**

NOS. 400 AND 800 "RED CAP" ANGLE REFLECTORS

Alzak Aluminum

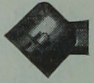
No. **400**	AC-DC-OC or SC, Open Type (100-watt)	$3.50
No. **40017-CR**	Lens and Clamping Ring for 400 Series	2.10
No. **424**	Color Discs (4 colors) and Ring	.95
No. **800**	AC-DC-OC or SC, Open Type (150-200-300 watts)	4.50
No. **80017-CR**	Lens and Clamping Ring for 800 Series	4.10
No. **824**	Color Discs (4 colors) and Ring	1.25

Prices include choice of "Red Caps."

No. 800-SC

AC

DC



OC

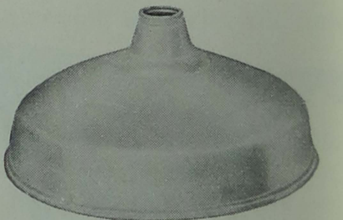
SC

AC "Red Cap"	45°
DC "Red Cap"	90°
OC "Red Cap"	135°
SC "Red Cap"	180°

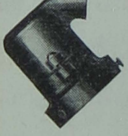
ALZAK ALUMINUM INDUSTRIAL REFLECTORS

Standard Dome			Shallow Dome			Deep Bowl		
SLM-100	12″	**$1.90**	**SEM-100**	12″	**$1.70**	**SBM-100**	7½″	**$1.60**
SLM-150	14″	**2.20**	**SEM-150**	14″	**1.90**			
SLM-200	16″	**2.60**	**SEM-200**	16″	**2.50**	**SBM-200**	9¾″	**2.20**

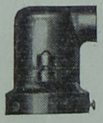
Standard 2¼-inch Shade Holder Sockets fit these Reflectors.



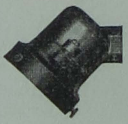
Standard Dome (SLM)



AS45



DS90



OS135

SS180

AS45	45°	ea.	**$2.00**
DS90	90°	ea.	**2.00**
OS135	135°	ea.	**2.00**
SS180	180°	ea.	**2.00**

ALZAK ALUMINUM INTERNAL SOCKET REFLECTORS

Standard Dome			Shallow Dome			Deep Bowl		
SLMAS-100	12″	**$3.30**	**SEMAS-100**	12″	**$3.30**	**SBMAS-100**	7½″	**$3.10**
SLMAS-150	14″	**3.50**	**SEMAS-150**	14″	**3.50**			
SLMAS-200	16″	**4.10**	**SEMAS-200**	16″	**4.10**	**SBMAS-200**	9¾″	**3.50**
SLMAS-500	18″	**5.30**						

ALZAK ALUMINUM HIGH BAY REFLECTORS

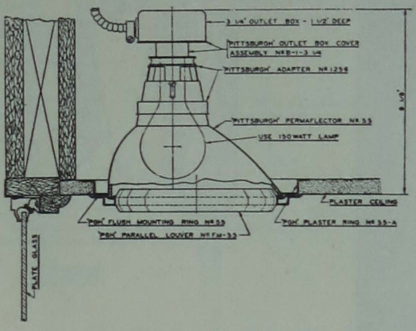
Wide Angle Type				Concentrator Type			
SBMA- 500	300- 500w.	12″	**$7.50**	**SBMC- 500**	300- 500w.	14″	**$10.00**
SBMB- 500	300- 500w.	14″	**9.00**	**SBMS-1500**	750-1500w.	18″	**12.50**
SBMA-1500	750-1500w.	16″	**10.00**	**SBMC-1500**	750-1500w.	20″	**13.60**
SBMB-1500	750-1500w.	18″	**12.50**				

Standard Dome (SLMAS)

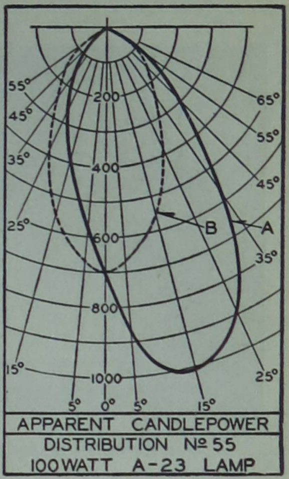
PERMAFLECTOR SHOW WINDOW LIGHTING

PERMAFLECTORS NOS. 55 AND 54

No. 55


3 1/4" OUTLET BOX - 1 1/2" DEEP
'PITTSBURGH' OUTLET BOX COVER ASSEMBLY Nº B-1-3 1/4
'PITTSBURGH' ADAPTER Nº 1256
'PITTSBURGH' PERMAFLECTOR Nº 55
USE 150 WATT LAMP
8 1/8"
PLASTER CEILING
'PGH' FLUSH MOUNTING RING Nº 55
'PGH' PARALLEL LOUVER Nº FM-55
'PGH' PLASTER RING Nº 55-A
PLATE GLASS

No. 55 with Plaster Ring, Flush Mounting Ring and Louver. Minimum spacing 11 inches on centers.



APPARENT CANDLEPOWER
DISTRIBUTION Nº 55
100 WATT A-23 LAMP

Application — Primarily for shallow windows 4 to 9 feet high, medium trim; island windows, or windows with upper portion of background of glass. Also excellent for other display lighting such as rug racks, quotation boards, building fronts and entrances; choirs and sanctuaries of churches; handball, squash, indoor badminton or tennis; art galleries and museums, and indirect cove lighting.

Spacing Recommended — 12 inches on centers.

Bottom Opening Circular — Diameter, 8½ inches.

Lamp Size — 100-watt A-23, Adapter in compressed position; 150-watt A-25, Adapter in extended position.

For use on grooved porcelain socket add suffix letter "R."

When installed flush (not plastered) use Flush Mounting Ring No. 55.

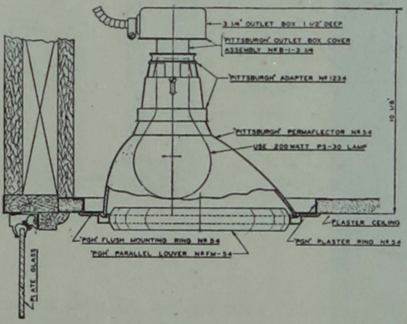
When installed flush (plastered) use Plaster Ring No. 55-A with Flush Mounting Ring No. 55.

For louvered lighting: No. FM-55 Parallel Louver; No. FM-88-CA Eccentric Louver.

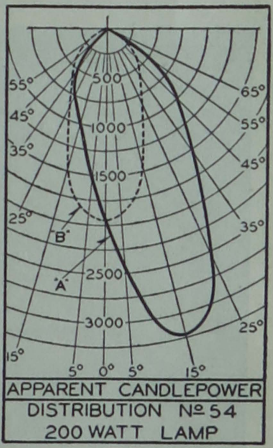
Standard package, 10; weight, approximately 18 pounds.

Price, No. 55 .... **$3.50**

No. 54


3 1/4" OUTLET BOX 1 1/2" DEEP
'PITTSBURGH' OUTLET BOX COVER ASSEMBLY Nº B-1-3 1/4
'PITTSBURGH' ADAPTER Nº 1234
'PITTSBURGH' PERMAFLECTOR Nº 54
USE 200 WATT PS-30 LAMP
10 1/8"
PLASTER CEILING
'PGH' FLUSH MOUNTING RING Nº 54
'PGH' PARALLEL LOUVER Nº FM-54
'PGH' PLASTER RING Nº 54
PLATE GLASS

No. 54 with Plaster Ring, Flush Mounting Ring and Louver. Minimum spacing 12½ inches on centers.



APPARENT CANDLEPOWER
DISTRIBUTION Nº 54
200 WATT LAMP

Application — Same as No. 55 shown above except for shallow windows from 7 to 10 feet high.

Spacing Recommended — 12 inches on centers.

Bottom Opening Circular — Diameter, 9½ inches.

Lamp Size — 150-watt A-25, Adapter in compressed position; 200-watt PS-30, Adapter in extended position.

For use on grooved porcelain socket add suffix letter "R."

When installed flush (not plastered) use Flush Mounting Ring No. 54.

When installed flush (plastered) use Plaster Ring No. 54 with Flush Mounting Ring No. 54.

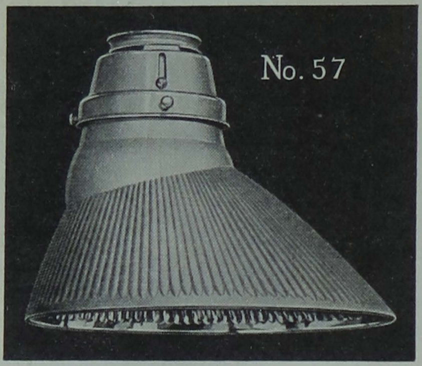
For louvered lighting: No. FM-54 Parallel Louver; No. FM-99-CA Eccentric Louver.

Standard package, 8; weight, approximately 18 pounds.

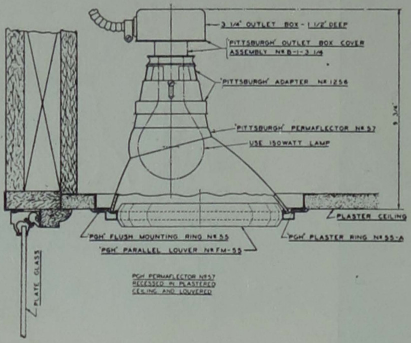
Price, No. 54 .... **$4.00**

PERMAFLECTOR SHOW WINDOW LIGHTING

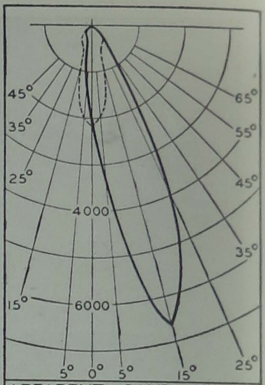
PERMAFLECTORS NOS. 57 AND 56



An Asymmetric Spot Reflector


3 1/4" OUTLET BOX - 1 1/2" DEEP
'PITTSBURGH' OUTLET BOX COVER ASSEMBLY No B-1-3 1/4
'PITTSBURGH' ADAPTER No 1256
'PITTSBURGH' PERMAFLECTOR No 57
USE 150 WATT LAMP
9 3/4"
PLASTER CEILING
'PGH' FLUSH MOUNTING RING No 55
'PGH' PLASTER RING No 55-A
'PGH' PARALLEL LOUVER No FM-55
PLATE GLASS
PGH PERMAFLECTOR No 57 RECESSED IN PLASTERED CEILING AND LOUVERED

No. 57 with Plaster Ring, Flush Mounting Ring and Louver. Minimum spacing 11 inches on centers.



APPARENT CANDLEPOWER
DISTRIBUTION No 57
150 WATT LAMP

Application — Primarily for high and very shallow windows, height from two to three times the depth, or windows in which the display is placed low in the window as for instance jewelry and shoe windows. Excellent for narrow island windows installed around their four sides. Also good for other display lighting service such as rug racks, quotation boards, building fronts and entrances; choirs and sanctuaries of churches; handball, squash, indoor badminton or tennis; art galleries and museums; and indirect cove lighting.

Spacing Recommended — 12 inches on centers.

Bottom Opening Circular — Diameter, 8½ inches.

Lamp Size — 100-watt A-23, Adapter in compressed position; 150-watt A-25, Adapter in extended position.

For use on grooved porcelain socket, add suffix letter "R."

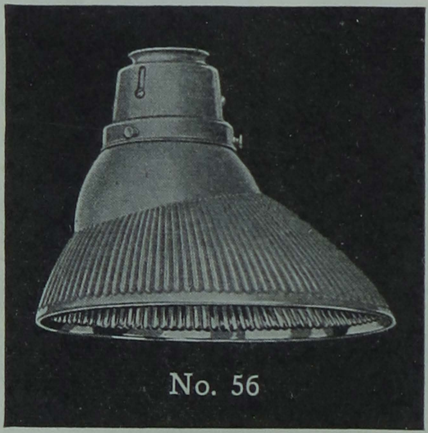
When installed flush (not plastered) use Flush Mounting Ring No. 55.

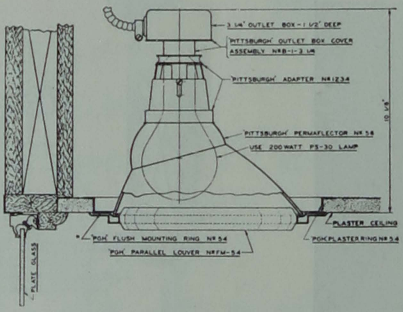
When installed flush (plastered) use Plaster Ring No. 55-A with Flush Mounting Ring No. 55.

For louvered lighting use No. FM-55 Parallel Louver; No. FM-88-CA Eccentric Louver.

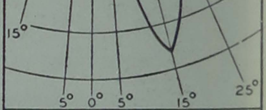
Standard package, 10; weight, approximately 17 pounds.

Price, No. 57 ....$3.50




3 1/4" OUTLET BOX - 1 1/2" DEEP
'PITTSBURGH' OUTLET BOX COVER ASSEMBLY No B-1-3 1/4
'PITTSBURGH' ADAPTER No 1234
'PITTSBURGH' PERMAFLECTOR No 56
USE 200 WATT PS-30 LAMP
10 1/8"
PLASTER CEILING
'PGH' FLUSH MOUNTING RING No 54
'PGH' PLASTER RING No 54
'PGH' PARALLEL LOUVER No FM-54
PLATE GLASS

No. 56 with Plaster Ring, Flush Mounting and Louver. Minimum spacing 12½ inches on centers.



APPARENT CANDLEPOWER
DISTRIBUTION No 56
200 WATT LAMP

Application — Same as No. 57 shown above.

Spacing Recommended — 12 inches on centers.

Bottom Opening Circular — Diameter, 9½ inches.

Lamp Size — 150-watt A-25, Adapter in compressed position; 200-watt PS-30, Adapter in extended position.

For use on grooved porcelain socket, add suffix letter "R."

When installed flush (not plastered) use Flush Mounting Ring No. 54.

When installed flush (plastered) use Plaster Ring No. 54 with Flush Mounting Ring No. 54.

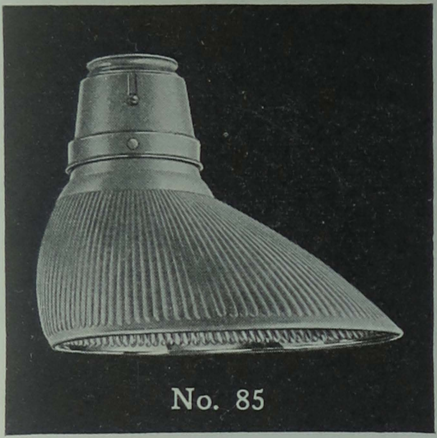
For louvered lighting use No. FM-54 Parallel Louver; No. FM-99-CA Eccentric Louver.

Standard package, 8; weight, approximately 18 pounds.

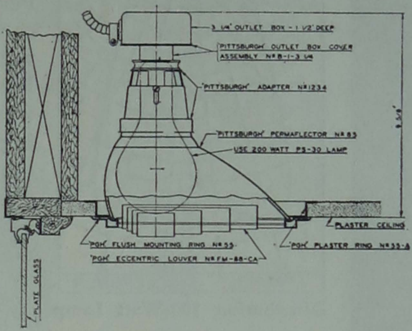
Price, No. 56 ....$4.00

PERMAFLECTOR SHOW WINDOW LIGHTING

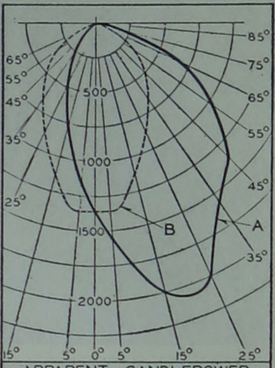
PERMAFLECTORS NOS. 85 AND 77



No. 85


3 1/4" OUTLET BOX - 1 1/2" DEEP
"PITTSBURGH" OUTLET BOX COVER ASSEMBLY No B-1-3 1/4
"PITTSBURGH" ADAPTER No 1234
"PITTSBURGH" PERMAFLECTOR No 85
USE 200 WATT PS-30 LAMP
PLASTER CEILING
"PGH" FLUSH MOUNTING RING No 55
"PGH" PLASTER RING No 55-A
"PGH" ECCENTRIC LOUVER No FM-88-CA
PLATE GLASS

No. 85 with Plaster Ring, Flush Mounting Ring and Louver. Minimum spacing 11 inches on ceners.



APPARENT CANDLEPOWER DISTRIBUTION No 85 200 WATT LAMP

Application — Permaflector No. 85, when installed flush in the ceiling, illuminates the full height of the background without the sharp cut-off of the more concentrating reflectors Nos. 55, 54, 57. Hitherto these desirable results could be secured only by the use of the angle reflectors Nos. 73, 105, 110, 500, which however required angling-off the ceiling at the glass line to conform to the angle of the front of the reflector, a form of construction frequently out of question. Another application of No. 85 is for indirect lighting from wall urns, coves, columns and indirect floor lamps.

Spacing Recommended — 12 inches on centers.

Bottom Opening Circular — Diameter, 8½ inches.

Lamp Size — 150-watt, A-25, in compressed position; 200-watt, PS-30, in extended position.

For use on grooved porcelain socket, add suffix letter "R."

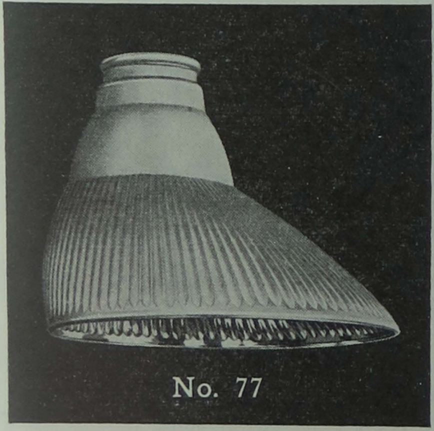
When installed flush (not plastered) use Flush Mounting Ring No. 55.

When installed flush (plastered) use Plaster Ring No. 55-A with Flush Mounting Ring No. 55.

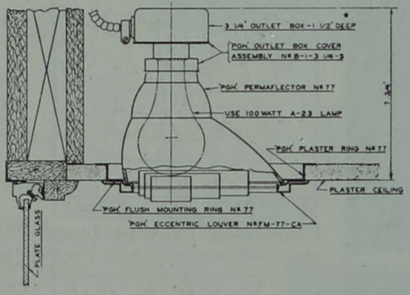
For louvered lighting, use No. FM-55 Parallel Louver; No. FM-88-CA Eccentric Louver.

Standard Package, 6; weight, approximately 12 pounds.

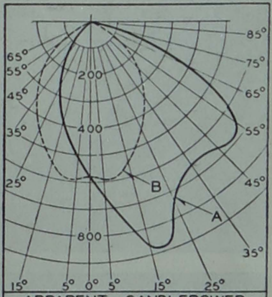
Price, No. 85 .... $4.00



No. 77


3 1/4" OUTLET BOX - 1 1/2" DEEP
"PGH" OUTLET BOX COVER ASSEMBLY No B-1-3 1/4-S
"PGH" PERMAFLECTOR No 77
USE 100 WATT A-23 LAMP
"PGH" PLASTER RING No 77
PLASTER CEILING
"PGH" FLUSH MOUNTING RING No 77
"PGH" ECCENTRIC LOUVER No FM-77-CA
PLATE GLASS

No. 77 with Plaster Ring, Flush Mounting Ring and Louver. Minimum spacing 9¾ inches on centers.



APPARENT CANDLEPOWER DISTRIBUTION No 77 100WATT A-23 LAMP

Application — When installed flush in the ceiling illuminates the full height of the background without the sharp cut-off of the more concentrating reflectors Nos. 55, 54, 57. This is a reflector window-display-men have been awaiting. Hitherto these desirable results could be secured only by the use of the angle reflectors Nos. 73, 105, 110, 500, which required angling-off the ceiling at the glass line to conform to the angle of the front of the reflector, a form of construction frequently out of question. Also ideal for indirect lighting from wall urns, coves, columns and indirect floor lamps.

Spacing Recommended — 12 inches on centers.

Bottom Opening Circular — Diameter, 7 inches.

Lamp Size — 100-watt, A-23.

For use on grooved porcelain socket, order 2¼-inch Form "SR" holder.

When installed flush (not plastered) use Flush Mounting Ring No. 77.

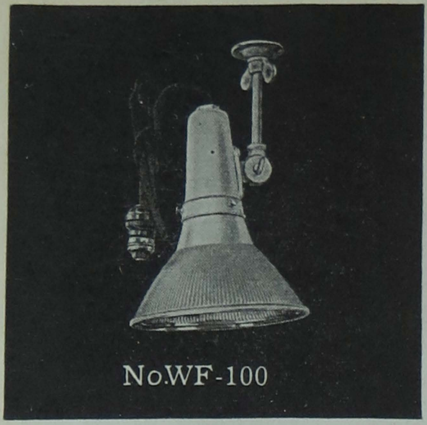
When installed flush (plastered) use Plaster Ring No. 77 with Flush Mounting Ring No. 77.

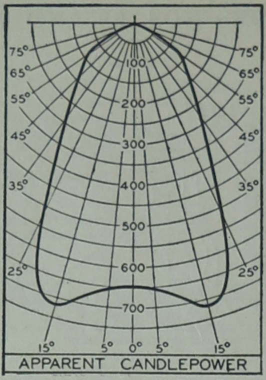
For louvered lighting: No. FM-77 Parallel Louver; No. FM-77-CA Eccentric Louver.

Standard package, 12; weight, approximately 16 pounds.

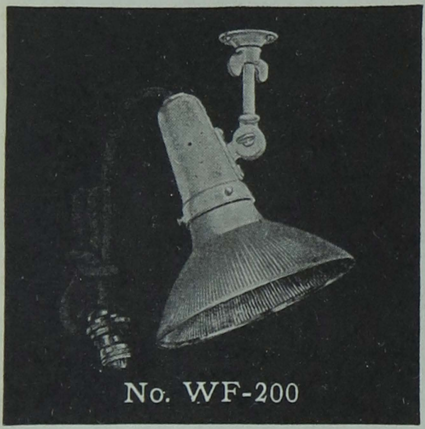
Price, No. 77 .... **$2.55**

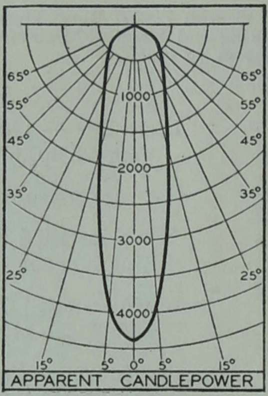
PERMAFLECTOR INTERIOR FLOODS AND INTERIOR SPOTS


No.WF-100



Distribution 100-Watt Lamp


No. WF-200



Distribution 200-Watt Lamp

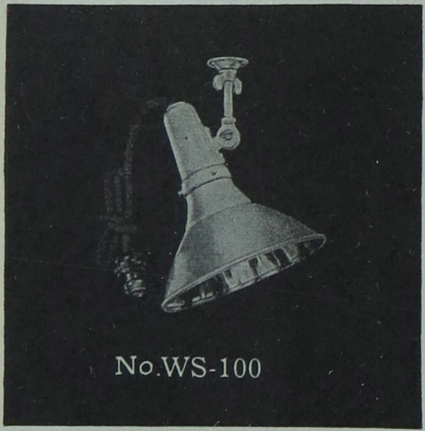
INTERIOR FLOODS

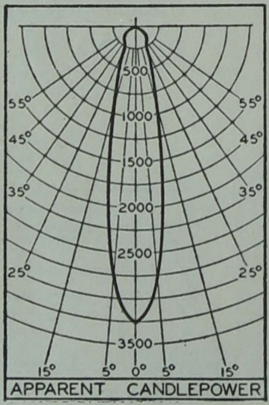
Permaflector Interior Floods are furnished with socket, cord and plug. They produce a broader beam of light with less intense beam center than the Interior Spots. Ideal for supplementary illumination of show rooms, window lighting, night lighting and emergency lighting. Number of floods to be installed depends upon the psychological effect desired and extra convenience outlets should be provided to serve these units. The reflectors used with Interior Floods may be recessed in the ceiling and also may be louvered.

WF-100 — Reflector 6¾″ diameter; height overall including bracket, 10½″.
Lamp Size — 100-watt, A-23.
Complete as shown, including 30″ of cord and plug.
Standard quantity, ...1
Price, No. WF-100 ....$6.00

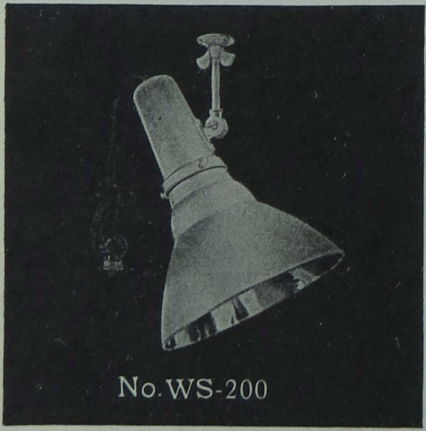
WF-200 — Reflector 9⅞″ diameter; height overall, including bracket, 11¼″.
Lamp Size — 200-watt, PS-30.
Complete as shown, including 30″ of cord and plug.
Standard quantity, ...1
Price, No. WF-200 ....$7.50

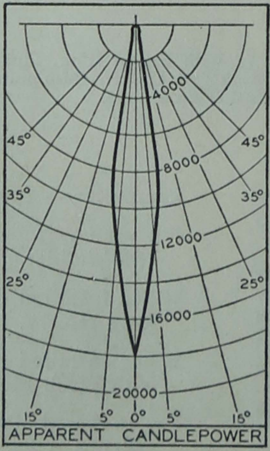
Note: Prices and Data on Larger Sizes supplied upon request.


No.WS-100



Distribution 100-Watt Lamp


No.WS-200



INTERIOR SPOTS

Permaflector Interior Spots are furnished complete with socket, cord and attachment plug; also adjustable bracket for attaching to ceiling, transom bar, etc. These spots are not intended as the sole source of light but are ideal with clear or colored light for focusing attention on stages, show rooms, dance halls, etc., where exceedingly concentrated illumination is desired over a limited area. Colorlites are available. Reflectors may be recessed and louvered. EM series, concentric louvers may be used to conceal lamp and reflector.

WS-100 — Reflector 8⅛″ diameter; height overall, including bracket, 11″.
Lamp Size — 100-watt, A-23.
Complete as shown including 30″ of cord and plug.
Standard quantity, ...1
Price, No. WS-100 ....$6.75

WS-200 — Reflector 10″ diameter; height overall, including bracket, 13½″.
Lamp Size — 200-watt, PS-30.
Complete as shown including 30″ of cord and plug.
Standard quantity, ...1
Price, No. WS-200 ....$7.50

←(Distribution 200-Watt Lamp)

Note: Prices and Data on Larger Sizes supplied upon request.

PERMAFLECTOR ADAPTERS

Compressed Position

Extended Position

No. 1256

Both Adapters, at left, take Catalog No. 1256. Fit Permaflectors No. 55, 110, 112, etc.

Price Each......**$0.50**

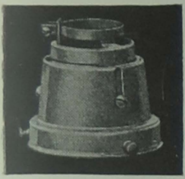
No. 1234

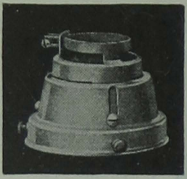
Both Adapters, at right, take Catalog No. 1234. Fit Permaflectors No. 100, 54, 56, etc.

Price Each......**$0.50**

Compressed Position

Extended Position


1234-R Compressed Position


1256-R Compressed Position

No. 1256-R

Shown at left. Consists of Adapter No. 1256 with shade-holder ring for grooved porcelain sockets.

Price Each......**$0.50**

No. 1234-R (above at right) consists of No. 1234 with shade-holder ring for grooved porcelain sockets.

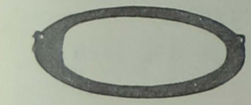
Price Each **$0.50**

PERMAFLECTOR FLUSH MOUNTING RINGS

For convenience in making flush mounting installations, Pittsburgh Outlet Box Cover Assemblies, to which the Adapters or holders of the Permaflectors are directly attached, are used.

When flush mounting Permaflectors it is necessary that the opening in the ceiling be cut to the proper size. Upon request drawing for cutting the opening will be supplied. For round reflectors merely cut round hole of diameter specified.

For high wattages in confined spaces it may be desirable to provide ventilation to prevent abnormal temperatures.


No. 500

FLUSH MOUNTING RINGS

No. 55

Flush Ring No.	Dia. of Hole in Ceiling	Min. Spacing on Centers	Standard Quantity	Price Each
28	5¾"	7½"	40	**$0.30**
54	9¾"	12 "	32	**.50**
55	8¾"	10½"	40	**.42**
73	7 "	9¼"	48	**.38**
77	7¼"	9¼"	48	**.38**
555	12¾"	15 "	25	**1.00**
C-100	8⅜"	10½"	40	**.42**
C-201	10¼"	12 "	36	**.65**
C-300	11¾"	15 "	25	**1.20**
C-500	13¾"	16½"	25	**1.50**
E-500	12¼"	15 "	25	**1.15**
I-25	4¾"	6 "	40	**.30**
I-201	10¼"	12 "	40	**.65**
I-1005	16¼"	24 "	25	**2.10**
		Non-Circular		
500	Templet free on request	15"	25	**1.70**

PERMAFLECTOR PLASTER RINGS

When Permaflectors are to be set flush in a plastered ceiling, our plaster rings are a great convenience. They make possible a perfectly round finished opening in the ceiling and provide the means of conveniently attaching the flush mounting ring, hinged ceiling roundel, louvers or built-in units.

The lather installs the rings. The plasterer plasters flush with bottom. The finished job is stout, rigid and workmanlike.

Plaster Ring No.	Min. Spacing on Centers	Standard Quantity	Price Each
1-B	12 "	25	**$0.80**
2-B	16 "	25	**1.30**
3-B	21 "	10	**2.45**
4-B	10 "	25	**.70**
6-B	13 "	25	**1.00**
28	8 "	25	**.75**
54	12½"	25	**.85**
55-A	11 "	25	**.80**
77	9¾"	25	**.75**
555	15 "	25	**1.20**
C-500	16½"	25	**1.30**

RECESSED LIGHTING

Many merchants favor a clear space free from suspended lighting fixtures. Indirect lighting equipment concealed in or mounted on the store furniture accomplishes this object. Where indirect illumination is not applicable, Permaflectors recessed in the ceiling concealed by glass or louvers are becoming very popular.

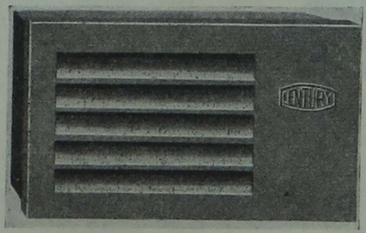
SQUARE D EXIT BOXES

Boxes furnished with 5-inch letters. Green glass is standard, can be supplied with red glass when specified.

Exit boxes with fronts cast of brass or hinged fronts can be supplied.

Cat. No.	Type Front	Box Size Inches	List Price
1	Surface Stamped Steel........	6x12¼x4	**$7.50**
2	Flush Stamped Steel	6x12¼x4	**7.50**

CENTURY AISLE AND STEP LIGHTS



No. 2300

Century Aisle and Step lights can be easily concealed. Code gauge steel structure assures withstanding hard usage. Access to wires is simplified by quickly removable cover.

Cat. No.	Description	List Price
2300	Horizontal Louvers	**$5.00**
2301	Vertical Louvers	**5.00**
2302	Ribbed Glass	**4.50**
2304	Bare Face	**2.50**

OAMCO REFLECTORS

Synthetic Enameled Metal Reflectors—Schedule A

Finished Green Outside, Reflecting Surface White

FLAT CONE

Made with collars for standard holders.

Cat. No.	Diam. Inches	For Holder Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
508	8	2¼	25	7	**$20.00**
508A	10	2¼	25	10	**23.00**
508B	12	2¼	25	15	**43.00**
508C	14	2¼	25	22	**50.00**
508D	16	2¼	25	30	**70.00**

With holder attached to fit medium brass threaded shell socket.

Cat. No.	Diam. Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
659	8	25	7	**$28.00**
659A	10	25	10	**36.00**
659B	12	25	15	**43.00**
659C	14	25	22	**62.00**

SHALLOW CONE

Made with collars for standard holders as specified below.

Cat. No.	Diam. Inches	For Holder Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
507A	8	2¼	25	9	**$26.00**
507B	10	2¼	25	12	**30.00**
507C	12	2¼	25	18	**48.00**

With holder attached to fit medium brass threaded shell socket.

Cat. No.	Diam. Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
661	8	25	9	**$35.00**
661A	10	25	12	**40.00**
661B	12	25	18	**55.00**

DEEP CONE

For local light distribution over machines, work benches, office use, etc. Made with collars for standard holders.

Cat. No.	Diam. Inches	For Holder Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
547A	8	2¼	25	9	**$23.30**
547B	10	2¼	25	12	**27.20**
547C	12	2¼	25	17	**47.00**

With holder attached to fit medium brass threaded shell socket.

Cat. No.	Diam. Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Per 100
660	8	25	9	**$31.00**
660A	10	25	12	**36.00**
660B	12	25	17	**50.00**

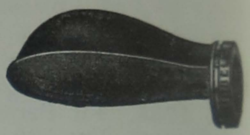
HUBBELL REFLECTORS

HALF REFLECTORS

No. 6152 brush brass and frosted. Cannot be supplied with P holder.

Cat. No.	Metal	Size Lamps Watts	Carton	Std. Pkg.
6152	Brass	15	1	30

No. 5429 green and white. No. 5532 brush brass and frosted. No. 6789 Lacco brass and frosted.



Cat. No.	Metal	Size Lamps Watts	Carton	Std. Pkg.
5429	Steel	25–40–60	1	30
5532	Brass	25–40–60	1	30
6789	Steel	25–40–60	1	30

PARABOLA REFLECTORS

With Holder at Side—Size 6½ Inch

Nos. 5564 and 5461 green and frosted. No. 5571 brush brass and frosted.

Cat. No.	Metal	Size Lamps Watts	Carton	Std. Pkg.
5564	Steel	25–40–60	1	30
5571*	Brass	25–40–60	1	30
5461	Alum.	25–40–60	1	30

PARABOLA REFLECTORS

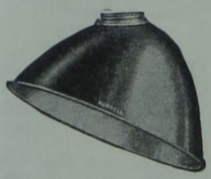
With Holder at Top—Size 6½ Inch

No. 6094 and 6549 green and frosted. No. 6548 brush brass and frosted.

Cat. No.	Metal	Size Lamps Watts	Carton	Std. Pkg.
6094	Steel	25–40–60	1	30
6548*	Brass	25–40–60	1	30
6549	Alum.	25–40–60	1	30

PARABOLA REFLECTORS

With Holder at 30° Angle—Size 6½ Inch



Nos. 6550 and 6552 green and frosted. No. 6551 brush brass and frosted.

Cat. No.	Metal	Size Lamps Watts	Carton	Std. Pkg.
6550	Steel	25–40–60	1	30
6551*	Brass	25–40–60	1	30
6552	Alum.	25–40–60	1	30

*For brass reflectors in polished nickel or statuary bronze finish, add 50 per cent to list. All other special finishes, prices on application.

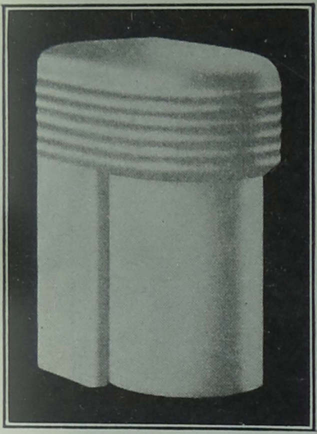
White interior furnished without extra charge.

Aluminum or steel reflectors cannot be furnished in a plated finish.

The above reflectors are all fitted with holders for brass shell sockets. If desired for weatherproof sockets place the letter "P" after Cat. No.

ALABAX LIGHTING FIXTURES

STREAMLINED MODERN BRACKETS



AL-3130 to AL-3139

Streamlined, modern brackets for use in bathroom. Will take up to 60 watt lamps.

Dimensions: Width, 3½ inches; height, 6¼ inches. Shipping weight approximately 320 lbs. per 100.

White Glaze Fixture—White Opal Glass

Cat. No.	Description	Price Each
AL-3130	Keyless—no outlet	$3.48
AL-3131	With Push Switch—with outlet	4.23
AL-3132	With Push Switch—no outlet	3.93

Black Glaze Fixture—White Opal Glass

Cat. No.	Description	Price Each
AL-3134	Keyless—no outlet	4.23
AL-3135	With Push Switch—with outlet	4.98
AL-3136	With Push Switch—no outlet	4.68

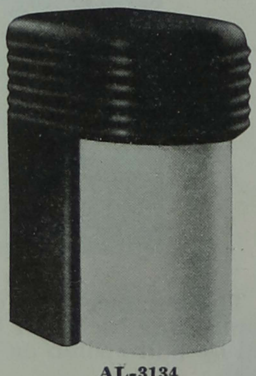
Ivory Glaze Fixture—White Opal Glass

Cat. No.	Description	Price Each
AL-3137	Keyless—no outlet	4.23
AL-3138	With Push Switch—with outlet	4.98
AL-3139	With Push Switch—no outlet	4.68

RUSTPROOF PORCELAIN FIXTURES

Rustproof porcelain fixtures—for use at the front door, entrances, outdoors; white opal glass, open at bottom, will not catch bugs. Smart, streamlined design.

Dimensions: Width, 3½ inches; height, 6¼ inches. Shipping weight approximately, 320 lbs. per 100.

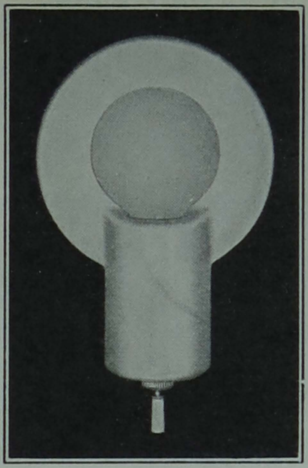


AL-3134

Cat. No.	Description	Price Each
AL-3130	Keyless—White Glaze Porcelain—White Opal Glass	$3.48
AL-3134	Keyless—Black Glaze Porcelain—White Opal Glass	4.23
AL-3137	Keyless—Ivory Glaze Porcelain—White Opal Glass	4.23

Price does not include lamps.

ALABAX LIGHTING FIXTURES



SIDE WALL BRACKET

A bracket to cover almost any box used on side walls. Supplied not only in white, but also in black, ivory, and light green glazes.

Length 6¾ inches; width, 4¾ inches. Standard packing, 12.

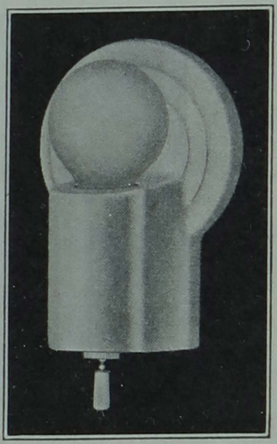
Pull Type				Keyless Type		
Cat. No.	Price Each White	Price Each Color	Conv. Outlet	Cat. No.	Price Each White	Price Each Color
AL-2108	$2.31	$2.76	With	AL-2110	$2.01	$2.46
AL-2109	2.01	2.46	None	AL-2111	1.71	2.16

SIDE WALL BRACKET

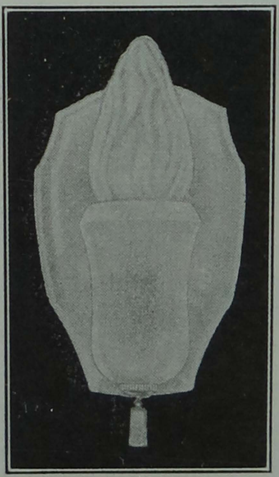
An attractive side wall bracket for mounting on almost any box.

This fixture can be supplied in white, black, ivory, and light green glazes from stock.

Length, 5¾ inches; width, 4 inches. Standard packing, 12.



Pull Type				Keyless Type		
Cat. No.	Price Each White	Price Each Color	Conv. Outlet	Cat. No.	Price Each White	Price Each Color
AL-2500	$1.80	$2.25	With	AL-2502	$1.65	$2.10
AL-2501	1.50	1.95	None	AL-2503	1.35	1.80



FOR 3¼ OR 4-INCH BOXES WITH PLASTER RING

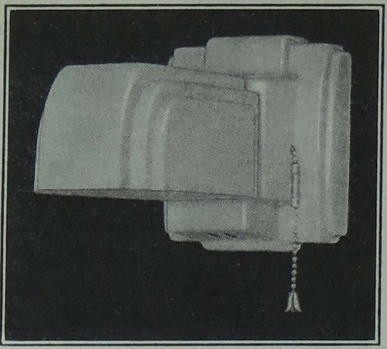
An attractive general purpose bracket to mount almost anywhere. Complete with fittings to apply to switch, 3¼-inch and 4-inch boxes with plaster ring.

Supplied in black, light green or ivory glazes at small additional cost.

Length back, 6 3/16 inches; width back, 4 inches. Standard packing, 12.

Cat. No.	Type	Outlet	Wt. Lbs. Per 100	Price Each White	Price Each Color
AL-3100	Pull	With	140	$1.86	$2.31
AL-3101	Pull	No	130	1.56	2.01
AL-3102	Keyless	With	140	1.71	2.16
AL-3103	Keyless	No	130	1.41	1.86

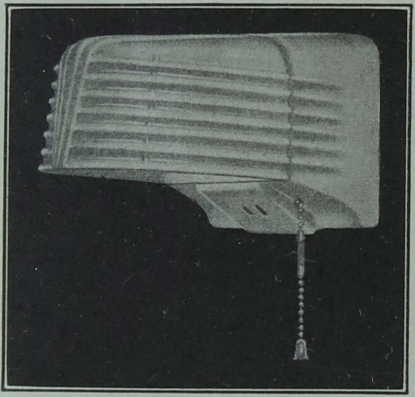
ALABAX LIGHTING FIXTURES
FOR 3¼ OR 4-INCH OUTLET BOXES



A pleasing design and unusually easy to install on switch boxes, 3¾ or 4-inch outlet boxes with studs. Base, 5x4½ inches. Std. Pkg., 12.

Pull Type				Keyless Type		
Cat. No.	Price Each White	Color	Outlet	Cat. No.	Price Each White	Color
AL-2380	$2.85	$3.30	With	AL-2382	$2.70	$3.15
AL-2381	2.55	3.00	No	AL-2383	2.40	2.85

STREAMLINE WALL BRACKETS

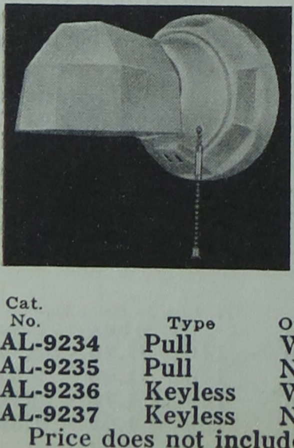


AL-2390

Streamlined beauty—glistening porcelain brackets—white opal 60 watt glass shade. Complete with P&S Alabax swivel strap, to facilitate hanging; with chain insulator and snub on the pull socket, with pure white opal glass, with Underwriters' label attached. Base of fixture—4⅝ by 4⅝ inches.

Cat. No.	Type	Outlet	Wt. Lbs. Per 100	Price Each White	Color
AL-2390	Pull	With	260	$2.85	$3.30
AL-2391	Pull	No	260	2.55	3.00
AL-2392	Keyless	With	260	2.70	3.15
AL-2393	Keyless	No	260	2.40	2.85

FOR 3¼ OR 4-INCH BOXES



An attractive general purpose bracket designed to mount almost anywhere, but unusually easy to install on outlet boxes, 3¼ and 4-inch studs.

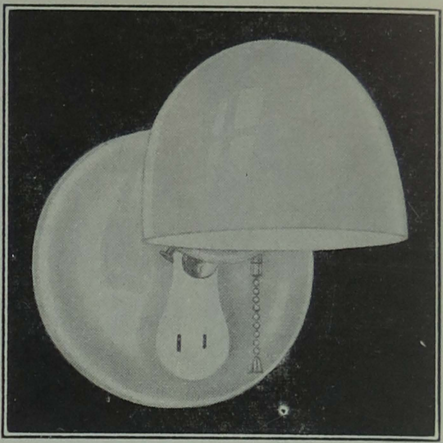
Supplied in black, ivory or light green glazes at small additional cost. Complete with glass.

Standard package, 12.

Cat. No.	Type	Outlet	Wt. Lbs. Per 100	Price Each White	Color
AL-9234	Pull	With	320	$2.70	$3.30
AL-9235	Pull	No	320	2.40	3.00
AL-9236	Keyless	With	320	2.55	3.15
AL-9237	Keyless	No	320	2.25	2.85

Price does not include lamps.

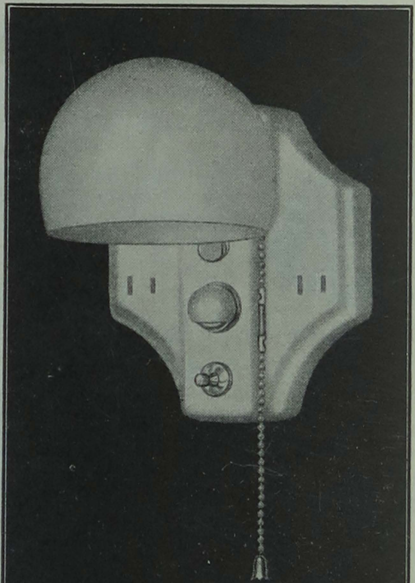
ALABAX LIGHTING FIXTURES
FOR 3¼ AND 4-INCH OUTLET BOXES AND OUTLET PLATES



A general purpose bracket. Complete fittings to attach to studs. Supplied in black, light green or ivory glazes at small additional cost. Price does not include glass.

Cat. No.	Type	Outlet	Wt. Lbs. Per 100	Price Each White	Color
AL-990	Pull	With	233	$2.40	$3.00
AL-980	Keyless	With	230	2.10	2.70
AL-982	Pull	No	233	2.10	2.70
AL-984	Keyless	No	233	1.80	2.40

WALL BRACKET WITH NIGHT LIGHT



AL-2297

These fixtures are furnished with pull socket for controlling the main light. Night light is controlled by pull switch or canopy switch as listed.

Cat. No.	Shade	Outlets	Price Each White	Color
	With Pull Switch Controlling Night Light			
AL-2280	Opal Glass	No	$6.90	$7.65
AL-2281	Enameled Metal	No	7.15	7.90
AL-2282	Opal Glass	Two	7.50	8.25
AL-2283	Enameled Metal	Two	7.75	8.50
	With Canopy Switch Controlling Night Light			
AL-2295	Opal Glass	No	6.45	7.20
AL-2296	Enameled Metal	No	6.70	7.45
AL-2297	Opal Glass	Two	7.05	7.80
AL-2298	Enameled Metal	Two	7.30	8.05

Price does not include lamps.

MITCHELL SPOTLIGHT

MODEL NO. 1900 SPOTLIGHT

For Use with PAR-38 Projection Lamp

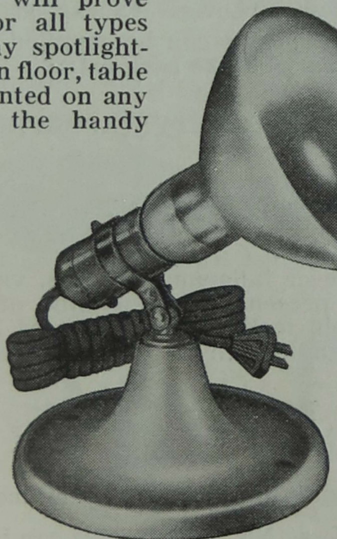
Model No. 1900
(illustrated with PAR-38 bulb)

Developed for use with the new PAR-38 Projection Lamp. Spotlight is chromium plated, and fully adjustable, so that the beam can be directed to any location desired. Durably constructed, with die-cast base, and screw machine brass fittings. Light in weight, and portable, it can be used to "stage light" window displays, sign displays, and for a thousand other purposes where a compact, high powered, efficient spotlight is desired.

Porcelain socket, 8-ft. Approved cord and plug. May be set on floor, table, shelf, or mounted on wall. Waterproof connections throughout. Shipping weight 3 lbs. each. Packed one to a carton. Price, No. **1900** Spotlight (less bulb)....each **$3.50**

MODEL NO. 1901 ADJUSTABLE SPOTLIGHT BASE

For R-40 and PAR-38 Lamps



Model No. 1901
(illustrated with R-40 bulb)

This bracket will prove indispensable for all types of indoor display spotlighting. Can be set on floor, table or shelf, or mounted on any wall by using the handy "Hang-It-Up" feature. Heavy metal 6¼-in. diameter base. Well balanced, cannot tip. Swivel arrangement for adjusting beam of light to any position. Push switch socket, and 6-ft. Approved rubber cord and plug. Cadmium plated finish. Shipping weight 1¼ lbs. each. Packed one to a carton. Price does not include bulb.

Price, Model No. **1901** Spotlight Base....each **$1.35**

MODEL NO. 1902 SPOTLIGHT BASE

Durably constructed and weatherproof throughout. Adjustable to any position. The base will serve as an outlet box cover, or can be mounted on post, ceiling or wall. Porcelain socket, and Approved rubber cord and plug. Cadmium plated to resist weather corrosion. Shipping weight 1½ pounds.

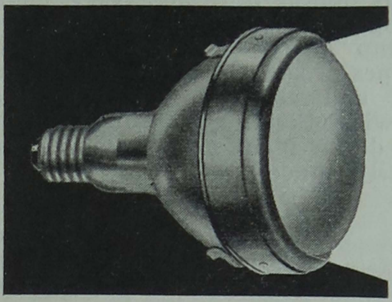
Price, Model No. **1902** (less bulb)..........each **$1.50**

MITCHELL COLOR LENS

FOR PAR-38 PROJECTOR AND R-40 REFLECTOR LAMPS

Color filter attachments for 150-watt, PAR-38 and R-40 lamps. These filters can be instantly "clipped" on the bulb, and convert the light beam to any desired color.

NO. 17 COLOR KIT FOR R-40 REFLECTOR BULB

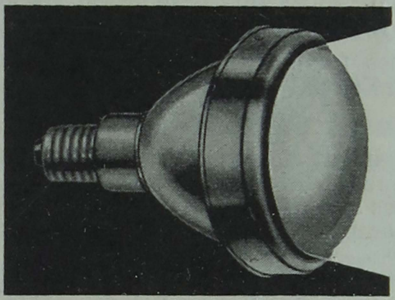


COLOR KIT consists of:
1 No. 17 Lens Holder
1 Green Color Lens
1 Blue Color Lens
1 Amber Color Lens
1 Red Color Lens

Shipping weight 2¼ lbs. per kit. Packed one kit to a carton.

Price, No. **17** Color Kit ....per Kit **$1.50**

NO. 18 COLOR KIT FOR PAR-38 PROJECTOR BULB



COLOR KIT consists of:
1 No. 18 Lens Holder
1 Green Color Lens
1 Blue Color Lens
1 Amber Color Lens
1 Red Color Lens

Shipping weight 2¼ lbs. per kit. Packed one kit to a carton.

Price, No. **18** Color Kit ....per Kit **$1.50**

Color lenses in Kits 17 and 18 are of processed glass with heat-resisting qualities, but are recommended for indoor use only. For outdoor use, refer to Color Kit No. 19.

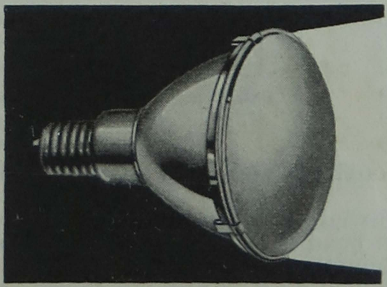
Separate Prices on Holders and Lenses Used in No. 17 and No 18 Color Kits

No. **17-H** Holder only for R-40 Lamp ......each **$0.60**
No. **18-H** Holder only for PAR-38 Lamp each **.60**

Color Lenses, interchangeable in No. 17-H and No. 18-H Holders—Green, Blue, Amber, Red (specify color). Price **$0.25** each.

NO. 19 COLOR KIT (PYREX) FOR PAR-38 PROJECTOR BULB

Each individual color is complete with frame and clips. Made of genuine Corning heat-resisting glass. These filters are recommended for OUTDOOR use, and will stand up under snow and rain.



COLOR KIT consists of:
1 No. 1920 Lighthouse Red
1 No. 1921 Golden Amber
1 No. 1922 Emerald Green
1 No. 1923 Rich Blue

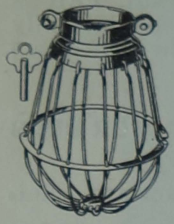
Shipping weight 3 lbs. per kit. Packed one kit to a carton.

Price, No. **19** Color Kit ....per Kit **$5.00**
Priced Individually **$1.50** each.

McGILL LAMP GUARDS

Approved by Underwriters

LOXON LAMP GUARDS



No. 1425

Breakage and theft take a heavy toll from users of large numbers of lamps. To stop breakage a sturdy guard is necessary. To stop theft an effective lock is required. The Loxon line does this double duty at a very small original cost. These dual-purpose lamp guards are made for all types of sockets. They are quickly and easily attached to the socket and locked with a key, one of which is furnished with each dozen guards. All guards are made of steel, heavily tinned.

Cat. No.	Lamp Size Watts	Fits Socket	Wt. Lbs. Per Doz.	Price Per Doz.
1425	50–60	Brass	2½	**$5.50**
1427A	50–60	W. P.	2½	**5.50**
1427B	50–60	W. P.	3	**5.50**
1426	‡60–100	Brass	2¼	**5.75**
1428A	‡60–100	W. P.	3	**5.75**
1428B	‡60–100	W. P.	3½	**5.75**
2443	100–150	Brass	4¼	**7.00**
2444	150–200	Brass	3	**9.00**
2446A	150–200	W. P.	3	**9.00**
2446B	150–200	W. P.	3½	**9.00**

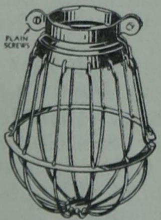
‡Special reflectors for 60 and 100-watt socket guards at slight additional cost.

LOXON MILL TYPE GUARDS

Loxon mill type guards Nos. 1420, 1420A, 1420B, are exactly the same as the regular loxon guards, except that the cages are built smaller to fit regular 50-watt mill type lamps.

Cat. No.	Lamp Size Watts	Fits Socket	Wt. Lbs. Per Doz.	Price Per Doz.
1420	25–40*	Brass	2¼	**$5.50**
1420A	25–40*	W. P.	2½	**5.50**
1420B	25–40*	W. P.	3	**5.50**

GRIPON LAMP GUARDS



No. 1600

Same style as Loxon type except they have plain screws instead of locking device for attaching to sockets.

Made for both regular and mill type lamps and for brass shell and weatherproof sockets. Heavy tinned finish.

Cat. No.	Lamp Size Watts	Fits Socket	Wt. Lbs. Per Doz.	Price Per Doz.
1608	25–40*	Brass	2¼	**$4.25**
1608A	25–40*	W. P.	2½	**4.25**
1608B	25–40*	W. P.	3	**4.25**
1600	50–60	Brass	2¾	**4.25**
1602A	50–60	W. P.	2¾	**4.25**
1602B	50–60	W. P.	3¼	**4.25**
1601	60–100	Brass	2¾	**4.50**
1603A	60–100	W. P.	3	**5.00**
1603B	60–100	W. P.	3½	**5.00**
1605	100–200	Brass	3	**7.50**
1606A	100–200	W. P.	3	**7.50**
1606B	100–200	W. P.	3½	**7.50**

*Also 50-watt rough service, and 50-watt mill type lamps.

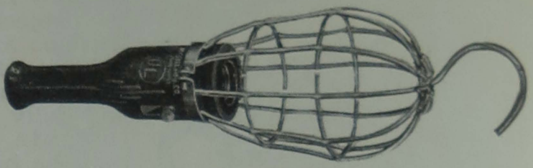
All numbers followed by A fit any weatherproof socket with bottom bead measuring 1 9/16 to 1 11/16 inches in extreme diameter.

All numbers followed by B fit any weatherproof socket with bottom bead measuring 1¾ inches in extreme diameter.

McGILL PORTABLE LAMP GUARDS

Approved by Underwriters

NO. 7000 SERIES RUBBER HANDLE PORTABLE LAMP GUARDS



No. 7000-S

Furnished with or without reflector. Black rubber handle equipped with 660-watt socket, electrically welded steel cage, bright cadmium alloy plating.

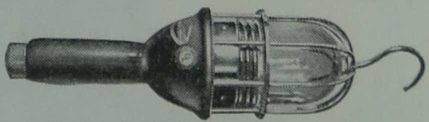
M-series guards have a small cage designed especially for the 50-watt rough service lamp.

Cat. No.	Cage	Lamp Size	Socket	Lgth. In.	Price Each
7000*	Plain-Closed	40-100	4003†	14	**$2.50**
7000R*	Refl.-Closed	40- 75	4003†	14	**3.00**
7000S	Plain-Closed	40-100	4005‡	14	**3.00**
7000SR	Refl.-Closed	40- 75	4005‡	14	**3.50**
7001*	Plain-Open	40-100	4003†	12	**2.50**
7001S	Plain-Open	40-100	4005†	12	**3.00**
7002	Plain-Open	200	4003▲	....	**5.50**
7000M	Plain-Closed	50W-RS	4003†	12⅜	**2.25**
7000MR	Refl.-Closed	50W-RS	4003†	12⅜	**2.75**
7000MS	Plain-Closed	50W-RS	4005‡	12⅜	**2.75**
7000MSR	Refl.-Closed	50W-RS	4005‡	12⅜	**3.25**
7001M*	Plain-Open	50W-RS	4003†	10¾	**2.25**
7001MR*	Refl.-Open	50W-RS	4003†	10¾	**2.50**
7001MS	Plain-Open	50W-RS	4005‡	10¾	**2.70**
7001MSR	Plain-Open	50W-RS	4005‡	10¾	**2.75**

†Keyless. ‡Lever. ▲Socket grounded.

*These guards can be supplied with grounding attachment at **$0.20** each extra.

NO. 3000 SAFETY VAPORPROOF GUARD



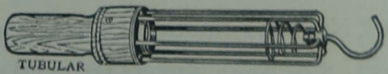
Wherever inflammable gases, vapors or materials are present, the 3000 line of safety guards, with tight-sealing globes, should be used. Hardwood handle with black, rubberized enamel finish.

Cat. No.	Cage	Lamp	Socket	Lgth. Inches	Wt. Oz. Each	Price Each
3000	Closed	50W-RS*	4003†	14½	20	**$6.00**
3000-R	Refl.	50W-RS*	4003†	14½	21	**6.50**

*Rough service; standard service 40-watt.

†Keyless. No. 3000 Guards can be supplied with grounded sockets for **$0.40 additional.**

CRESCENT TUBULAR GUARDS

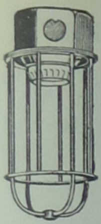


A slender portable for use behind switch boards, for examining boilers, valves, for every purpose where space is limited. All metal parts brass. Extreme diameter 2 inches. Takes a tubular lamp. Length with hook, 13½ inches.

Cat. No.	Cage	Lamp Size	Type Socket	Weight Ounces	Price Each
2598	Closed	T-10	4009 Keyless	11	**$3.50**

CRESCENT WALL GUARDS

OUTLET BOX COVER GUARDS

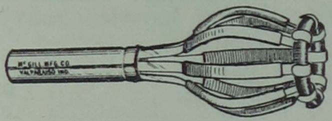


These guards have a closed cage with steel wire ribs and stamped rings, copper plated. Key hole slots in base rings for attaching or detaching.

Mfrs. No.	Size Outlet Box, In.	Type C Lamp	Diam. In.	Dpth. In.	Price Each
1436	3	60 Watt	2 13/16	5¾	$1.00
1438	4	100 Watt	3⅛	6⅝	1.25

McGILL LAMP CHANGER

ADAPTABLE LAMP CHANGER



The Adaptable lamp changer has been improved by the use of a coil spring around the ends of the finger tips. This coil spring grips the lamp firmly and makes it much easier to remove. Nos. 150C and 151C can be furnished without the coil spring. For use with poles longer than ten feet, plain fingers without the coil spring recommended. Nos. 152 and 153 are supplied only with the coil spring.

Either aluminum or steel poles can be supplied. They are supplied in 5½-foot sections and should be ordered according to length of pole desired. Poles longer than 30 feet are not recommended.

Cat. No.	Description	Lamp Size Watts	Price Each
150C	*Coil Spring	15– 60	$6.50
151C	*Coil Spring	100– 200	6.50
152C	†Coil Spring	300– 500	7.00
153C	†Coil Spring	750–1500	7.50

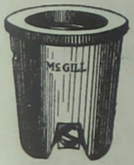
*Angle adjustment. †No angle adjustment.

Steel or aluminum poles up to 30-foot lengths, in sections of 5½ feet **$4.50** per section in any quantity.

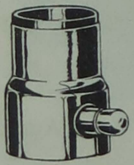
McGILL SOCKETS

KEYLESS AND LEVOLIER SOCKETS

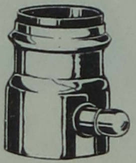
660-Watt



No. 4003



No. 4004



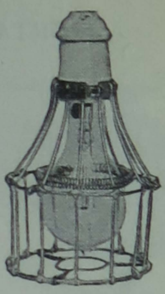
No. 4005

Only the highest quality sockets are used in the manufacture of McGill guards. Nos. 4005 and 4004 are Levolier types thoroughly insulated, with fibre levers. No. 4003, black composition, is firmly embedded in the handles of all keyless models.

Cat. No.	Watt	Description	Wt. Lbs. Per 100	Price Each
4002	660	Porcelain	25	$0.40
4003	660	Black Composition	25	.40
4004	660	Levolier with fibre lever	17	.60
4005	660	Levolier with fibre lever	17	.70
4006	660	Keyless	16	.40
4009	660	Keyless	9	.70
4015	660	Grounded	7	.80

MATTHEWS HOLDFAST LAMP GUARDS

For Brass Socket



For WP Socket

They are the only lamp guards that are guaranteed for 10 years. This guarantee is made possible because of their rugged construction. They are the only sure protection against breakage of the lamps. They are sure protection against fire hazard. By the use of the trap they are the best protection against theft.

Guards for brass sockets are indicated by the letter B after the numbers; for porcelain weatherproof sockets by the letters WP; collars on B guards are 1¼ inches in diameter, on WP guards 1½ inches in diameter.

Guards for Protecting 50-watt Rough Service, 25 and 40-watt Mazda Lamps and Other Sizes not Exceeding 4¼ inches in Length and 2⅜ inches in Diameter

Cat. No.	Size of Wire, B. W. G.	Price Less than 50 Per 100
MT14B	14	$40.00
MT14WP	14	40.00

Guards for Protecting 50, 60, and 75-watt Mazda Lamps and Other Sizes not Exceeding 5 5/16 inches in Length and 2¾ inches in Diameter

114B	14	38.00
114WP	14	38.00
112B	12	47.00
112WP	12	47.00

Guards for Protecting 100-watt Rough Service, and 150-watt Mazda Lamps and Other Sizes not Exceeding 6 15/16 inches in Length and 3¼ inches in Diameter

514B	14	50.00
514WP	14	50.00

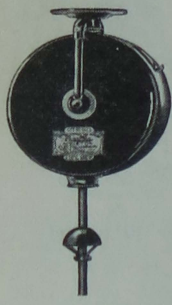
Guards for Protecting 200-watt Type C Pear Shape Mazda Lamps and other sizes not Exceeding 8⅛ inches in Length and 3¾ inches in Diameter

714B	14	86.00
714WP	14	86.00

APPLETON PORTABLE REELITES

Rating—250 Volts, 660 Watts

PORTABLE TYPE REELITES



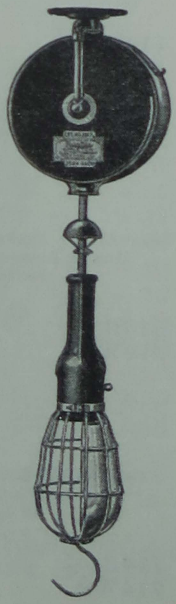
An automatic reeling device for extension light cords. The light is always available within arm's reach and no time is lost in untangling cords or plugging in for new extensions. Each reel has a ratchet stop which works exactly like a window shade. Furnished standard with cover plate which fits over all 3¼ or 4-inch octagonal outlet boxes. Finish is black enamel. Furnished with No. 18 gauge, 2-conductor, rubber-covered cord.

Cat. No.	Description	‡Wt. Lbs.	Wt. Lbs. Per Doz.	Price Each
	With 12 Feet of Cord—5½-inch Reelite			
1532	Without Wiring Device..	1	50	$9.50
1533	Brass Shell Key Socket..	1	61	10.00
1534	Composition Key Socket	1	62	10.00
	With 25 Feet of Cord—7¼-inch Reelite			
1524	Without Wiring Device..	2	93	12.00
1524½	Keyless* (Cord Grip)....	2	97	13.00
1525	Brass Shell Key Socket (Less Guard)	2	94	12.50
1526	Composition Key Socket (Less Guard)	2	97	12.50
1530	Grounding Type without Wiring Devices†	2	95	13.00
	With 40 Feet of Cord—10-inch Reelite			
1519	Without Wiring Device..	1	150	23.00

*Socket rated at 600 volts, 660 watts. †Furnished with No. 18-3 conductor cord, two of which are connected to brushes and third grounded to frame.

‡**Lifting Capacity.** For devices attached to cord of Reelites listed above.

RUBBER HANDLE TYPE



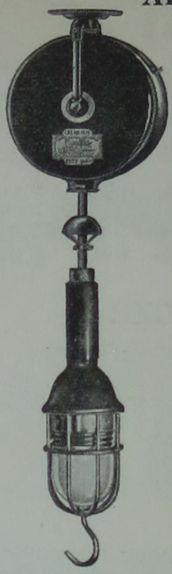
Furnished with or without switch in handle. Also has heavy duty wire guard accommodating 40 to 75-watt lamps.

Black enameled reel-unit 7¼ inches diameter, with base for attaching to 3¼ or 4-inch outlet boxes; 25 feet No. 18 gauge, 2-conductor, rubber-covered cord; rubber handle.

With Half Reflector

Cat. No.	Type Socket	Wt. Lbs. Per Doz.	Price Each
1516	Keyless	133	$15.00
1517	Levolier	133	15.00

APPLETON REELITES



Rating—250 Volts, 660 Watts

VAPORPROOF TYPE

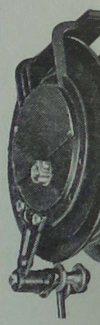
Furnished with Vaporproof Globe and Heavy Duty Wire Guard. Will accommodate 40-watt lamp Standard or 50-watt lamp Rough Service.

Black enameled reel-unit, 7¼ inches in diameter, with ceiling mounting for attaching to standard 3¼ or 4-inch octagonal outlet boxes. 20 feet No. 18 gauge, 2-conductor, rubber-covered cord; wood handle; heavy-duty wire guard.

Cat. No.	Description	Wt. Lbs. Per Doz.	Price Each
1529	Keyless	144	$17.50

FOR TYPE "SJ" CORD

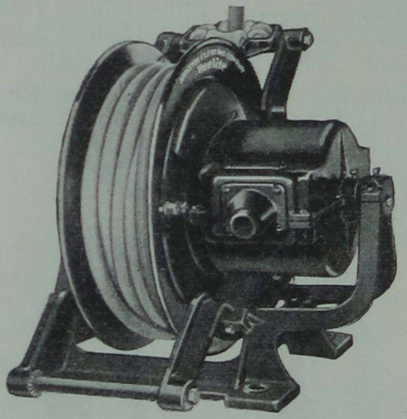
20 Amps., 600 Volts



Especially developed for Type SJ 2- and 3-conductor cords. The roller outlet permits either ceiling, wall, or base mounting. 25 feet of cord.

Cat. No.	Size Cord	No. of Cond.	Wt. Lbs.	Price Each
15218	18	2	14	$44.50
15318	18	3	14	50.00
15216	16	2	14	45.00
15316	16	3	14	50.00

REELITES FOR TYPE "S" CORDS



When ordering, specify—catalog number of Reelite; length, gauge and number of conductors of cable; type of cable outlet desired.

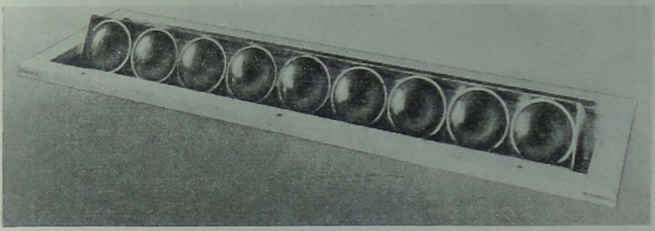
Material is cast aluminum, and steel. Black enameled finish.

Cat. No.	Wt. of Reelite Only	No. of Conductors	Max. Capacity, in Feet, of Various Sizes and Conductors of Rubber-Covered Cable				
			No.18	No.16	No.14	No.12	No.10
	Type "BS"—35 Amp., 600 Volts						
BS-22	124 lbs.	2	....	....	60	60	55
BS-32	126 lbs.	3	....	....	60	60	55
BS-42	128 lbs.	4	....	65	60	50	50
BS-52	154 lbs.	5	65	65	55	50	45
BS-62	156 lbs.	6	65	65	55	50	40
BS-72	158 lbs.	7	65	65	55	50	40
BS-82	160 lbs.	8	60	55	40	35	30
	Type "CS"—35 Amp., 600 Volts						
CS-24	154 lbs.	2	110	110	105	90	85
CS-34	156 lbs.	3	110	110	100	85	70
CS-44	158 lbs.	4	110	110	90	75	60
CS-54	184 lbs.	5	110	100	75	65	55
CS-64	186 lbs.	6	110	100	65	55	45
CS-74	188 lbs.	7	110	100	65	55	45
CS-84	190 lbs.	8	85	80	45	40	35

CENTURY FOOTLIGHTS AND BORDERLIGHTS

Listed by Underwriters' Laboratories.

DISAPPEARING FOOTLIGHTS



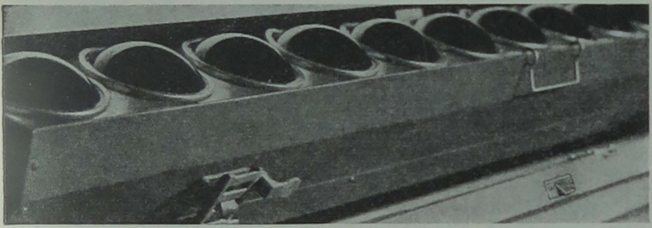
Individual Reflector Type — 2 Piece Wood Covers

Made in standard 5 ft. sections. Malleable iron supports and cross arm brackets to insure rigidity. Kiln dry maple wood trims. Mercury disconnect switches (on and off). Splice box for leads. Heat resisting colored glass roundels with Spring Ring Holders. (Combination Filter Holders available at additional cost).

Cat. No.	Type Reflector	No. of Outlets	Wattage	Price per Section
842	Chromium	9	75-150	**$73.00**
843	Alzak	9	75-150	**75.00**
844	Aluminum	9	75-150	**68.00**
845	Chromium	12	75-100	**70.00**
846	Alzak	12	75-100	**72.00**
847	Aluminum	12	75-100	**65.00**

Continuous Reflecting Surface — 2 Piece Wood Covers

Cat. No.	Type Reflector	No. of Outlets	Wattage	Price per Section
811	White Paint	15	25-100	**$50.00**
811A	Alzak Stripping	15	25-100	**60.00**
811C	Chromium Stripping	15	25-100	**55.00**



Individual Reflector Type — 3 Piece Wood Covers
6 Step Height Adjustment to Enable Varying Angles of Light Projection to the Stage

Cat. No.	Type Reflector	No. of Outlets	Wattage	Price per Section
848	Aluminum	9	75-150	**$68.00**
849	Chromium	9	75-150	**73.00**
850	Alzak	9	75-150	**75.00**
851	Aluminum	12	75-100	**65.00**
852	Chromium	12	75-100	**70.00**
853	Alzak	12	75-100	**72.00**

Continuous Reflecting Surface — 3 Piece Wood Covers
6 Step Height Adjustment

Cat. No.	Type Reflector	No. of Outlets	Wattage	Price per Section
832	White Paint	15	25-100	**$50.00**
832A	Alzak Stripping	15	25-100	**60.00**
832B	Chromium Stripping	15	25-100	**55.00**

NON-DISAPPEARING FOOTLIGHTS

Individual reflectors. Medium screw base receptacles. Color circuits as specified. Spring Ring Holders. (Combination Filter Holders available at additional cost). Splice box for feed cables.

Cat. No.	Type Reflector	Outlet Centers in Inches	Wattage	Price per Foot
860	Alzak	6	75-150	**$ 7.00**
861	Chromium	6	75-150	**7.00**
862	Aluminum	6	75-150	**6.00**

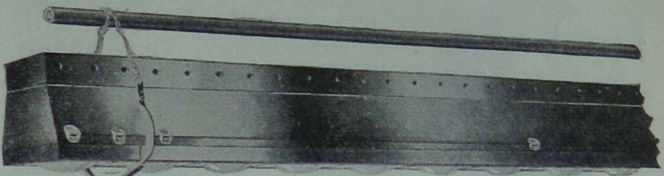
(Double Row Available with Chromium or Alzak Reflectors, wired on 5-in. centers.)

Continuous Reflecting Surface

Cat. No.	Type Reflector	Outlet Centers in Inches	Wattage	Price per Foot
800	Non-fade White or Aluminum Paint	12	25-100	**$ 3.10**
801	Aluminum Stripping	12	25-100	**4.35**
802	Chromium Stripping	12	25-100	**4.75**
803	Alzak Stripping	12	25-100	**5.00**

(Wired on 3, 4 or 6-in. centers at additional cost).

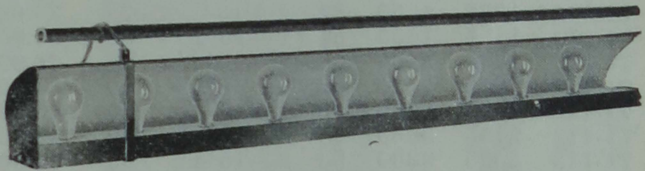
BORDERLIGHTS



Individual Reflector Type

Individual reflectors. Chain hangers. Scenery guards. Heat resisting colored glass roundels with Spring Ring Holders. (Combination Filter Holders available at additional cost). Splice box for feed cables.

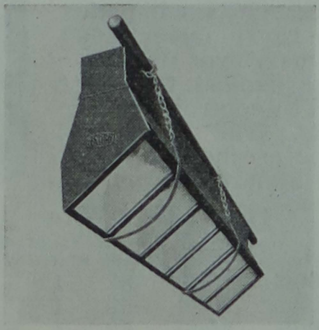
Cat. No.	Type Reflector	Outlet Centers in Inches	Wattage	Price per Foot
450	Alzak	6	75-150	**$ 7.00**
451	Chromium	6	75-150	**7.00**
452	Aluminum	6	75-150	**6.00**
455	Alzak	8	200	**10.00**
456	Chromium	8	200	**8.00**
457	Aluminum	8	200	**7.00**
460	Alzak	12	300-500	**12.50**
461	Chromium	12	300-500	**9.00**
462	Aluminum	12	300-500	**8.00**



Continuous Reflector Type

Semi-open trough. Continuous reflector strip backing. Wired on 12-in. centers to receive 25 to 100 watt lamps. (Wired on 3, 4 or 6-in. centers at additional cost).

Cat. No.	Type Reflector	Price per Ft.
400	Non-fade White or Aluminum Paint	**$3.10**
401	Matte Aluminum Stripping	**4.35**
402	Chromium Plated Stripping	**4.75**
403	Alzak Aluminum Stripping	**5.00**



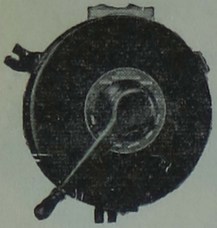
Compartment Type

Individual compartments. Non-fade white paint reflecting surface.

Cat. No.	Outlet Centers in Inches	Wattage	Price per Ft
406	8	200	**$5.00**
406½	6	100-150	**5.00**

WARD LEONARD NON-INTERLOCKING DIMMERS

BULLETIN 71 TYPE SRD DIMMERS



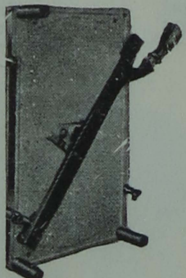
These dimmers are designed for use in churches, lodge rooms, small theatres, halls and auditoriums. They employ a substantial light-weight, pressed steel plate to support the resistance element, contacts, and contact lever. The resistance wires are embedded in vitreous enamel, a durable hard, moisture and acid resisting insulation that has high heat conduction. They are designed for continuous duty service; A.C. or D.C.; 110-220 volts; two or three-wire; wall, floor or back-of-board mounting; open or enclosed. When ordering, specify total wattage of connected load, voltage, two or three-wire and type of mounting.

115 Volts, 2-Wire

Cat. No.	Watts Min.	Watts Max.	No. of Steps	Size & No. of Plates	Shpg. Wt. Lbs.	Price Each
71-102	60	150	32	1— 8″	10	**$13.00**
71-103	155	250	32	1— 8″	10	**13.00**
71-104	255	400	32	1— 8″	10	**13.00**
71-105	405	550	32	1— 8″	10	**14.00**
71-106	555	650	32	1— 8″	10	**16.00**
71-119	655	750	54	1—13″	20	**18.00**
71-107	755	1000	54	1—13″	20	**18.00**
71-108	1005	1350	54	1—13″	20	**20.00**
71-109	1355	1650	54	1—15½″	35	**27.00**
71-110	1655	2000	68	1—15½″	35	**28.00**
71-111	2005	2450	68	1—18″	40	**33.00**
71-120	2455	2700	68	1—18″	40	**40.00**
71-112	2705	3000	68	1—18″	40	**42.00**
71-113	3005	3300	54	2—15½″	60	**54.00**
71-114	3305	4000	68	2—15½″	60	**56.00**
71-115	4005	4900	68	2—18″	70	**66.00**
71-116	4905	6000	68	2—18″	70	**66.00**
71-117	6005	7350	68	3—18″	100	**100.00**
71-118	7355	9000	68	3—18″	100	**100.00**

For three-wire service use above list for each half of total load. Thus, 2000 watts, 3-wire, would require 2 No. 71-107.

BULLETIN 71 TYPE BD DIMMERS



Bulletin 71 Type BD dimmers are suitable for large house dimmers, portable boxes and talking picture studios. The single plate watt ratings range from 1200 min. to 4000 max. Type BD dimmers may be banked together and operated to control two or more circuits. The operating levers may be arranged for interlocking to a master lever.

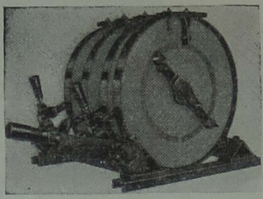
115 Volts, 2-Wire

Cat. No.	Watts Min.	Watts Max.	No. of Steps	No. of Plates	Shpg. Wt. Lbs.	Price Each
71-8061	1200	1500	58	1	80	**$66.00**
71-8062	1500	2000	58	1	80	**66.00**
71-8063	2000	2500	58	1	80	**66.00**
71-8064	2500	3000	58	1	80	**66.00**
71-8065	3000	4000	58	1	80	**66.00**
71-8066	4000	5000*	58	1	80	**66.00**
BD-161	5000	6000	5800	1	80	**73.00**
71-8068	6000	8000	58	2	140	**136.00**
71-8069	8000	10000	58	2	140	**136.00**
BD-151	....	*5000	58	1	80	**66.00**

*Use No. BD-151 for 5000-watt loads consisting of 500-watt or larger lamps.

WARD LEONARD INTERLOCKING DIMMERS

BULLETIN 72 TYPE RD

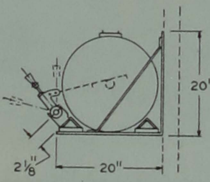


Form 21

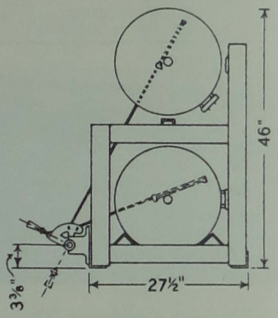
Vitrohm Interlocking Dimmers are for use where a number of circuits are to be controlled at one time. They have 110 steps of control and are made in two sizes, 15½ and 18-inch diameters. Both sizes may be used in the same framework for wall, floor or other form of mounting. Assembling of plates in frameworks is done at the factory.

Each dimmer is equipped with an interlocking lever which may be interlocked to a cam controlled by a master lever for master control. If desired, the master levers may, in turn, be interlocked to a grand master lever for grand master control, or to worm wheel drive for Slow Motion Control. By using double interlocking masters and a worm wheel drive, Slow Motion Cross Control may be obtained.

The approximate length of a dimmer bank may be calculated by multiplying the number of plates plus 1 by 4 inches and adding 5 inches for each master or grand master lever.



Form 23



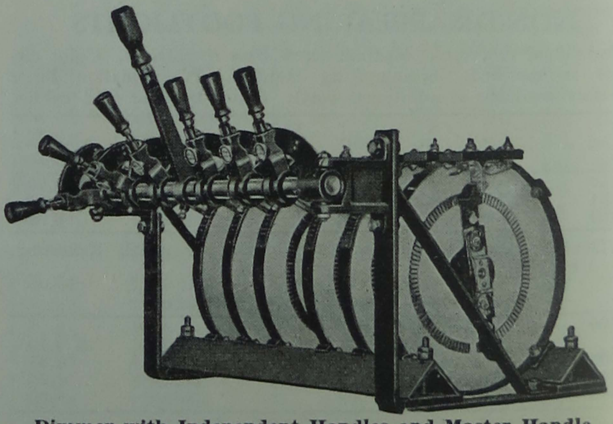
Form 25

TYPE RD INTERLOCKING DIMMERS

For 115 Volt 2-Wire Circuits

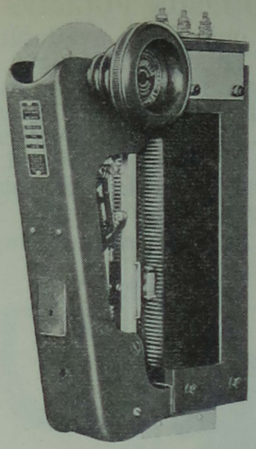
Lamp Load in Watts	No. of Plates	Approx. Wt. Lbs., Boxed	Price Each
200 to 2200	1	50	**$ 54.00**
2201 to 3000	1	55	**66.00**
3001 to 4400	2	100	**108.00**
4401 to 6000	2	110	**132.00**
6001 to 9000	3	165	**198.00**
9001 to 12000	4	240	**264.00**

Specify on orders exact voltage of each circuit and dimmers of suitable rating will be selected.



Dimmer with Independent Handles and Master Handle

WARD LEONARD AUTRASTAT DIMMERS



General

Autrastat Dimmers are for use in theatres, auditoriums, churches, lodge rooms, and dance halls.

The Autrastat Dimmer, is a modern, efficient method of controlling lamp brilliancy. The Autrastat is essentially an adjustable ratio auto-transformer. Its application to A.C. dimming circuits incorporates features which make it a very flexible, dependable, and desirable dimming control.

Construction and Operation

The Autrastat consists of an insulated copper conductor wound around a core of laminated transformer iron. This winding is connected directly across the A.C. line and is of such impedance as to limit the exciting or by-pass current to a low value. Each turn of the winding has a clean bare surface to permit electrical contact with a movable contact assembly. The voltage between the movable contact and one end of the Autrastat winding depends on the position of the assembly. This voltage is applied to the lamps. By moving the assembly the lamp voltage can be adjusted by the operator to give any desired intensity.

If the contact assembly is set for any definite light intensity each lamp will remain at that intensity, regardless of any change in the number of lamps connected in the circuit. Thus, an Autrastat can be used with any load up to its maximum rating.

> Autrastats operate from a 110/120 volt, 50/60 cycle line. They are available in 2250, 4000 and 5000-watt capacity.

The 2 brushes and the bare contact surfaces of the winding are so staggered that it is impossible to open the lamp circuit even momentarily. At least one of the brushes always is in contact with the winding, thus giving a smooth, continuous and gradual dimming or brightening of the lamps. There are at least 120 steps in changing from full bright to dim, resulting in flickerless dimming.

For wattages in excess of 5,000, two or more Autrastats of the same capacity are connected by Oldham couplings so that one lever or handwheel will operate simultaneously all the Autrastats in the group. This group is called a multiple Autrastat. The use of Oldham couplings gives the greatest flexibility with the minimum of lost motion and permits the removal of any Autrastat without disturbing adjacent assemblies. To avoid circulating currents the Autrastats must not be connected in parallel.

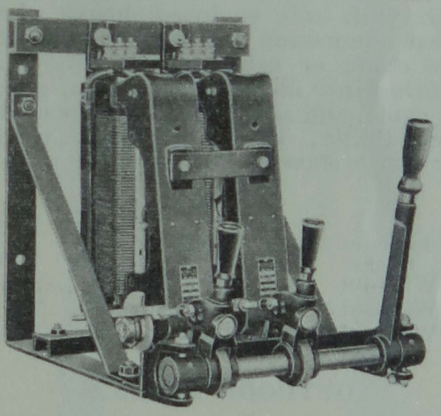
Non-Interlocking Autrastat Dimmers

The contact assembly of the Non-Interlocking Autrastat Dimmer is attached to a small drive pulley by a durable steel cable. The drive pulley is rotated by a handwheel. Each handwheel must be operated individually. Therefore, Non-Interlocking Autrastat Dimmers are applicable where only a small number of dimming controls are required.

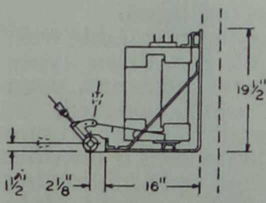
Interlocking Autrastat Dimmers

For large installations the interlocking type gives much greater flexibility. The drive pulley of the Interlocking Autrastat Dimmer is rotated by a bow and flexible brass chain, which provides quiet, positive action, and is self-cleaning and self-aligning. A drive rod connects the bow and chain to an operating lever, which turns independently on the shaft upon which it is mounted. However, by a slight twist of the handle the lever can be interlocked with a cam fastened to the shaft.

Each individual control consists of a single or multiple Autrastat with its own interlocking lever. The interlocking lever is provided with labels mounted on the side and top, indicating the name and color of the control. For best operation all interlocking levers should be grouped by color.



Simultaneous operation is obtained by interlocking several levers with their shaft and rotating the entire shaft by a master lever. This is known as master control. There are various forms of master control available and each installation should be carefully studied to determine the most applicable master system.



FORM A-23

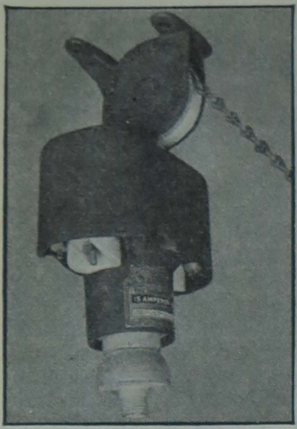
Form A-23 — For wall mounting. Various mounting forms, accessories and enclosures are available.

List Prices for Autrastat Dimmers

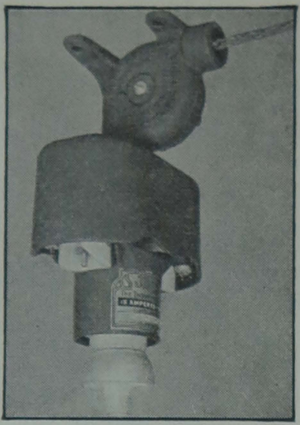
Cat. No.	Maximum Watts	Form No. A 23
76-12	2250	**$90.00**
76-14	4000	**95.00**
76-15	5000	**125.00**

THOMPSON LAMP LOWERING HANGERS

INDOOR MODELS FOR CONDUIT WIRING



Model No. 121
Open Face Sheave Housing



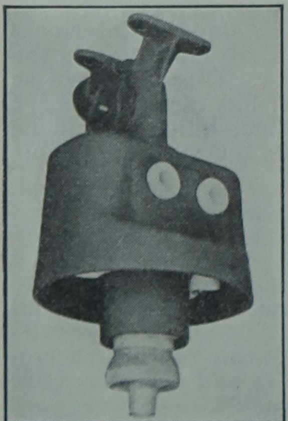
Model No. 125
Sealtype Sheave Housing

These models all provide for ½-inch conduit wiring connection to the face of the canopy. They may have the open type sheave housing as shown above, necessary with sloping or arched construction, or the semi-enclosed or sealtype sheave housing with flat construction for maximum protection.

Hangers with fully enclosed sheave wheels and a threaded connection for ¾-inch conduit to enclose the chain or cable, provide the maximum protection against dirt and corrosion, conceal the chain or cable, and at the same time provide maximum accessibility. They can only be used where chain or cable leaves the hanger in a horizontal plane.

Cat. No.	Insulator Knobs	Type of Sheave Housing	Standard Finish List Price
121	Without	Open Face	$ 9.60
123	Without	Semi-enclosed	9.80
125	Without	Sealtype	10.60

OUTDOOR MODELS



Model No. 155
Deep Canopy for Open Wiring

These models are all provided with the deep skirted canopy to afford maximum weather protection for outdoor use. They are made in the open wiring types with porcelain bushings and with or without porcelain knobs, also in the conduit connected types.

They are available with any of the three types of sheave housings, open face, semi-enclosed, or sealtype. The sealtype should be used if possible to avoid water following the chain or cable into the hanger.

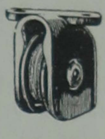
Type of Sheave Housing	Insulator Knobs	Open Wiring Type Cat. No.	Open Wiring Type List Price	Conduit Connected Cat. No.	Conduit Connected List Price
Open Face	Without	151	$10.60	161	$10.40
Open Face	With	152	10.80	......	....
Semi-enclosed	Without	153	10.80	163	10.60
Semi-enclosed	With	154	11.00	......	....
Sealtype	Without	155	11.60	165	11.40

THOMPSON LAMP LOWERING HANGERS

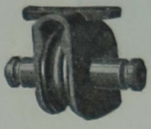
THOMPSON PULLEYS

A full line of pulleys is available to meet all requirements of Thompson Hanger installations. All pulley housings and wheels are malleable iron, the standard finish is black Japan housings, cadmium plated wheels. Also available in cadmium plate and hot-dip galvanized finish. Fixed position pulleys may be equipped with porcelain insulator knobs to carry open wiring.

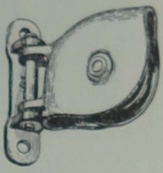
Right Angle Corner Pulleys



No. 601



No. 602

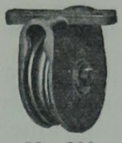


No. 605

No. 607

Cat. No.	Porcelain Knobs	Construction	List Price Japan	List Price Plated
601	Without	Fixed	$0.90	$1.05
602	With	Fixed	1.05	1.20
605	Without	Swing	1.50	1.70
607*	Without	Sealtype	1.75	2.00

*No. 607 has "V" notch and bolt spacing suitable for 1¼ or 1½-inch pipe bracket mounting.



No. 611

No. 613

Straight Through Pulleys

Furnished with or without porcelain knobs, as listed.

Cat. No.	Porcelain Knobs	Construction	List Price Japan	List Price Plated
611	Without	Fixed, overhung	$0.90	$1.00
612	With	Fixed, overhung	1.05	1.20
613	Without	Fixed, under and over	1.15	1.30
614	With	Fixed, under and over	1.30	1.50
615	Without	Swing, overhung	1.33	1.70

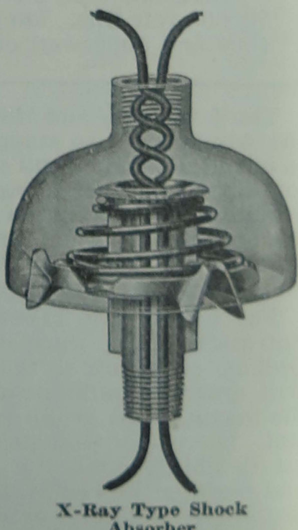
SUSPENSION, POLE, BRACKET AND MISCELLANEOUS FITTINGS

A full line of screw plates, pole plates, "U" bolts, pipe and span wire clamps, swing loops, grip cleats, flare ends, bracket ends, lock boxes, etc. suitable for hanger installations and other uses is available. These parts are also applicable to many other uses.

THOMPSON SHOCK ABSORBERS

These Shock Absorbers may be used either with Thompson Hangers or separately. Designed primarily to protect lighting fixtures from shock and vibration, they also are adaptable to many other uses. Simple and rugged in construction, easy to install and without a bolt, screw or nut to work loose, they afford maximum protection with long trouble-free life.

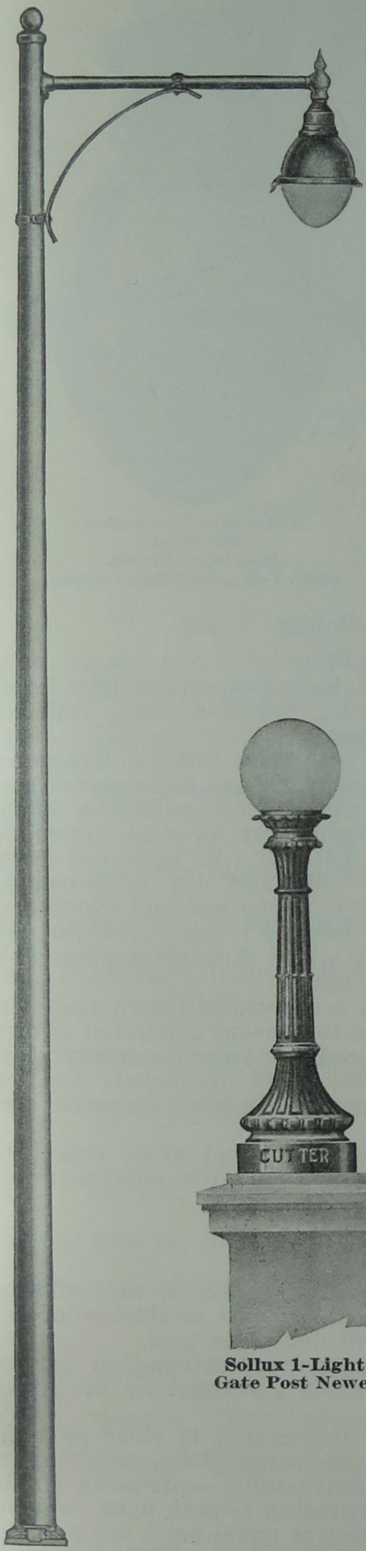
There are two sizes and three types and a range of springs to cover suspended weights from 1½ to 65 pounds. Finishes: Junior size, cadmium plate; Heavy Duty, hot-dipped galvanized.

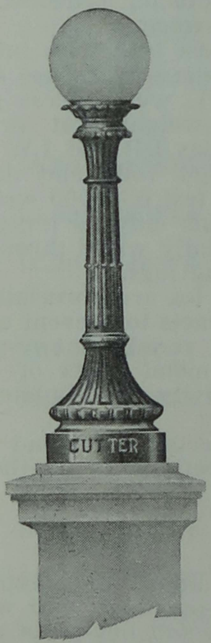


X-Ray Type Shock Absorber

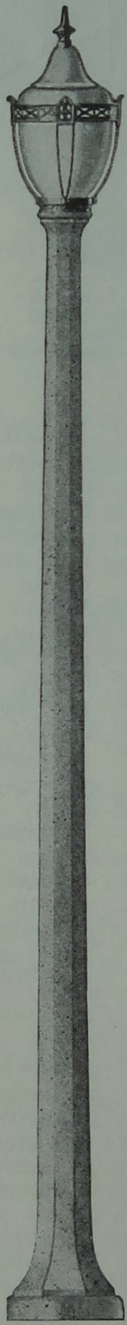
Prices and detailed information on request.

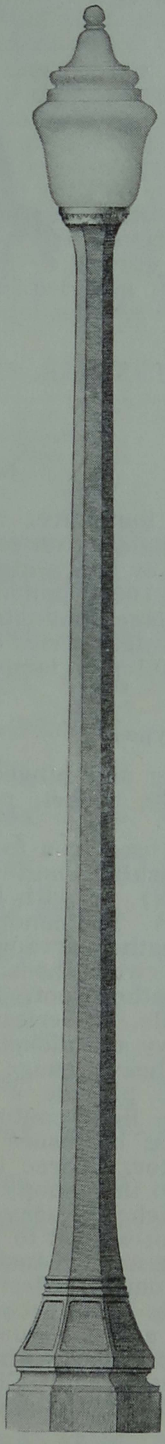
WESTINGHOUSE ORNAMENTAL STREET LIGHTING

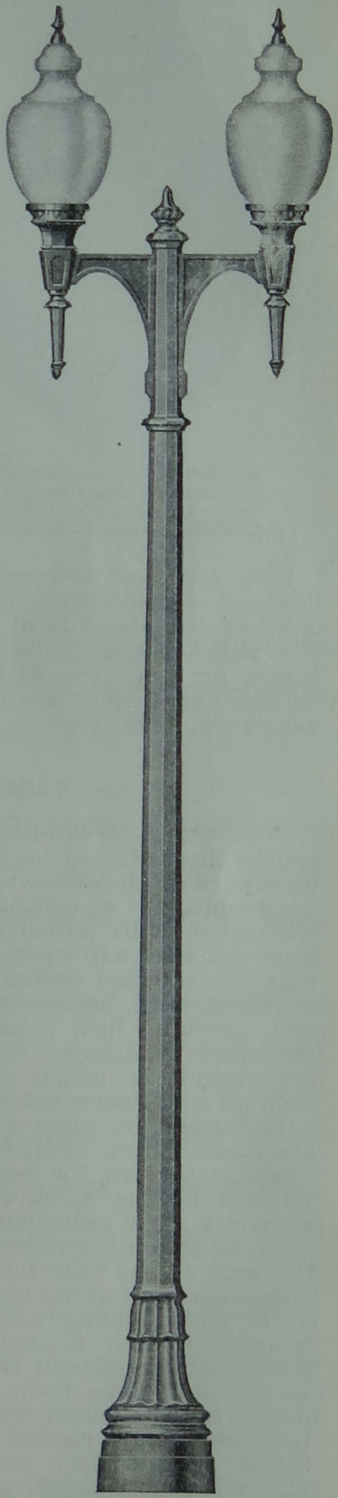

Round Monotube Pendant Standard with Reflectolux Luminaire



Sollux 1-Light Gate Post Newel


Sheridan Hollowspun Granite Standard with Paragon Luminaire

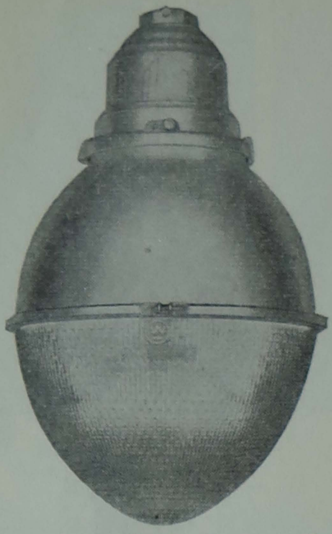

Edgewater Cast-Iron Standard with Sollux Luminaire


Union Metal Standard Normandy Design

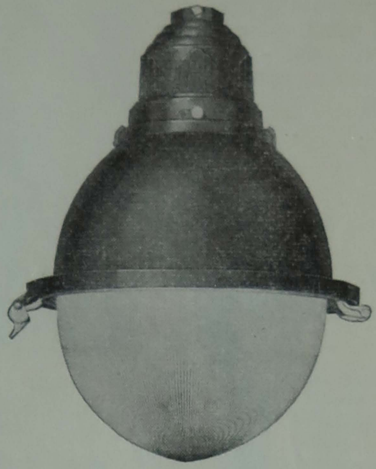
Write us for complete Street Lighting Catalog

WESTINGHOUSE REFLECTOLUX AND REFRACTOLUX LUMINAIRES

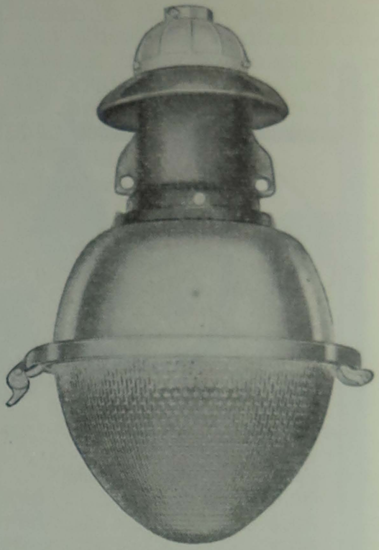
HIGH AND LOW VOLTAGE—HINGED GLOBE AND GLOBE-HOLDING RING TYPES



Reflectolux Luminaire
Inner Wiring Canopy
Aluminum Finish
Low Voltage—Globe-Holding Ring



Refractolux Luminaire
Inner Wiring Canopy
Green Finish
Low Voltage—Hinged Globe



Reflectolux Luminaire
DP Head
Aluminum Finish
High Voltage—Hinged Globe

Both types of **low-voltage** luminaires are for business or residential street lighting on series or multiple circuits of 2500 volts or less, suitable for use with 500-watt multiple or 10000 lumen series lamps, or less. The **high-voltage** luminaires are for same application but on straight series circuits with 2500, 4000, 6000 or 10000 lumen lamps.

Low-Voltage Types

Both the globe-holding ring and hinged units consist basically of a canopy, socket, reflector housing and glassware.

Canopies are of ornamental cast iron for inner wiring, or with porcelain bushings and 18-inch leads for external wiring (LN), or with binding posts for external wiring (ET). The canopies are provided with bug-proof breather arrangements and overhung lips, acting as watersheds. Units "breathe" freely, yet are weatherproof. Sockets are medium or mogul multiple, or series socket with all metal parts extra heavy and nickel-plated.

Reflectors are spun from heavy gauge (.064) aluminum sheet, polished to provide a highly specular surface for accurate light control, and finished by the Alzak Process to insure a permanently high reflection factor. Three bayonet slots, to attach the reflector to the canopy, are in the neck of the reflector, which has heavy gauge aluminum reinforcing ring spot-welded to it.

On globe-holding ring types, a ¼-inch overhanging lip spun around bottom of reflector supports globe band and protects joint between reflector and globe from dirt and moisture. The globe ring is channel ring sheet steel with tapped hole steel clips riveted to each end. Clamping screw permits easy removal or attachment of glassware to reflector.

On hinged globe types, the lower part of the reflector forms a gasket seat and is doubled back for reinforcement. A hinge clip and toggle latch are riveted to the lower flange of the reflector. The globe-ring is die cast, aluminum-hinged type with toggle catch. Globe seats on gasket in globe ring, centered and held in place by three bronze clips. Globe ring is easily removed from reflector without removing screws or pins.

High-Voltage Types

Both the globe holding ring and hinged units consist basically of a canopy, porcelain head, socket and receptacle, reflector ring, reflector housing and glassware.

Canopies are cast iron with integral hexagonal nut at top. Porcelain heads are dry process porcelain (Type DP), wet process porcelain (Type WP), and light-weight wet process porcelain (Type LW). Types DP and LW have wet flashover test of 15000 volts and dry flash-over of 30000. Type WP test is 30000 wet and 60000 dry. All porcelain heads may be inner wired through canopy, or externally wired through sloping cable entrance in wiring lugs.

Socket receptacles are porcelain with enclosed, heavy spring contacts to prevent collection of dirt. Socket proper is standard, two-prong, porcelain series type. All metal parts of sockets and receptacles are heavily nickel-plated to resist corrosion.

Reflectors, reflector rings and globe rings are the same specifications as on the corresponding low-voltage types.

General

On all low or high-voltage types, the reflector is gasketed at all openings with weatherproof felt to provide a dust and bug-proof seal.

Biflectors for asymmetric distribution are of polished aluminum (.064), finished by the Alzak Process.

All glassware for Reflectolux is clear or light alabaster rectilinear enclosing globe, either short or long type. For Refractolux—one-piece single element refractor providing lateral light control.

On all units, all exterior metal parts are painted green or finished natural aluminum and lacquered.

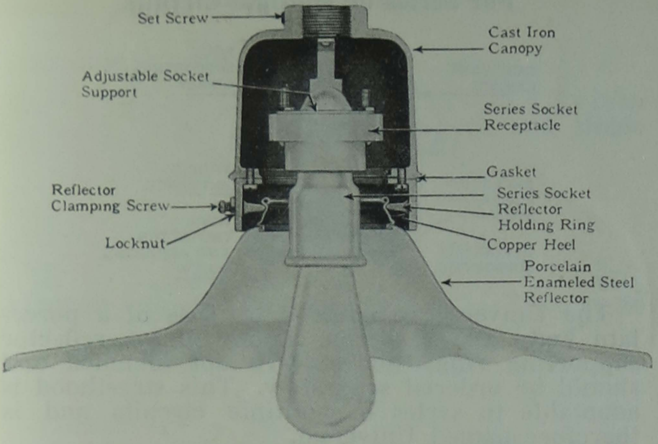
Reflectolux Senior

A combination type Reflectolux Senior for mercury and incandescent lamps is available. Uses one 400-watt mercury lamp and two medium base incandescent lamps. For series or multiple circuit.

Complete information and prices upon request.

WESTINGHOUSE STANDARD STREETHOODS

LOW VOLTAGE UNIVERSAL TYPE



Type IW Low Voltage Universal Standard Streethood With Radial Bowl Reflector

For use on series circuits operating below 5000 volts with 600 to 6000 lumen series lamps, or on Multiple circuits with 50 to 500-watt lamps. Use the socket designed for type of circuit to be used. Assembled units consist essentially of three parts: a green cast iron ornamental canopy, a reflector supporting ring and an Alzak or porcelain enameled reflector for the Universal standard streethood. Canopy can be furnished for inner wiring (IW) or for external wiring, i.e., equipped with procelain bushings and 18-inch leads (LN) or with binding post (ET). Casting has large hexagonal nut at top. Nut tapped for 1¼-inch fittings and equipped with set screw for tightening. Adjustable socket support within canopy for mounting multiple or series socket. Reflector supporting ring is fastened to canopy by three screws. Felt gasket clamped between the two seating surfaces forms dust-proof and weather-proof joint.

WITH SYMMETRIC RADIAL WAVE REFLECTOR

	Type IW				Type LN				Type ET			
	With Porcelain Enamel Reflector		With Diffused Alzak Reflector		With Porcelain Enamel Reflector		With Diffused Alzak Reflector		With Porcelain Enamel Reflector		With Diffused Alzak Reflector	
Shp. Wt. Lbs.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
Painted, with Series Socket												
20-Inch Radial Flat												
16	341191	$12.70	888569	$13.30	341252	$15.70	888591	$16.30	341366	$18.70	888613	$19.30
18-Inch Radial Bowl												
16	888568	12.70	888570	13.30	888590	15.70	888592	16.30	888612	18.70	888614	19.30
20-Inch Radial Bowl												
16	340274	13.20	888571	13.80	337646	16.20	888593	16.80	337631	19.20	888615	19.80
Painted, with Medium Multiple Socket												
20-Inch Radial Flat												
15	340275	10.80	888573	11.40	337647	13.80	888595	14.40	337632	16.80	888616	17.40
18-Inch Radial Bowl												
15	888572	10.80	888574	11.40	888594	13.80	888596	14.40	892803	18.80	888617	17.40
20-Inch Radial Bowl												
15	341192	11.30	888575	11.90	341254	14.30	888597	14.90	341368	17.30	888618	17.90
Painted, with Mogul Multiple Socket												
18-Inch Radial Bowl												
15	888576	11.00	888577	11.60	888598	14.00	888599	14.60	888619	17.00	888620	17.60
20-Inch Radial Bowl												
15	340273	11.50	888578	12.10	337645	14.50	888600	15.10	337630	17.50	888621	18.10
Porcelain Enamel, with Series Socket												
20-Inch Radial Flat												
16	341270	14.50	888580	15.10	341338	17.50	888602	18.10	341864	20.50	888623	21.10
18-Inch Radial Bowl												
16	888579	14.50	888581	15.10	888601	17.50	888603	18.10	888622	20.50	888624	21.10
20-Inch Radial Bowl												
16	341267	15.00	888582	15.60	341341	18.00	888604	18.60	341867	21.00	888625	21.60
Porcelain Enamel, with Medium Multiple Socket												
20-Inch Radial Flat												
15	341271	12.60	888584	13.20	341339	15.60	888606	16.20	341865	18.60	888627	19.20
18-Inch Radial Bowl												
15	888583	12.60	888585	13.20	888605	15.60	888607	16.20	888626	18.60	888628	19.20
20-Inch Radial Bowl												
15	341268	13.10	888586	13.70	341342	16.10	888608	16.70	341868	19.10	888629	19.70
Porcelain Enamel, with Mogul Multiple Socket												
18-Inch Radial Bowl												
15	888587	12.80	888588	13.40	888609	15.80	888610	16.40	888630	18.80	888631	19.40
20-Inch Radial Bowl												
15	341269	13.30	888589	13.90	341343	16.30	888611	16.90	341869	19.30	888632	19.90

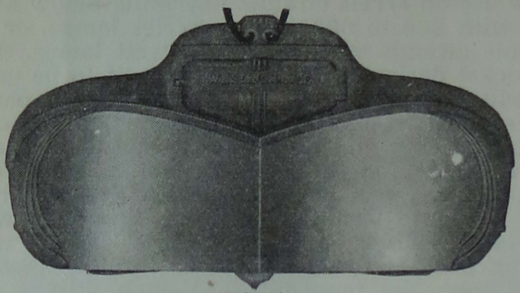
Cast-iron streethoods can be supplied with hot galvanized finish at same price as painted streethoods; cast aluminum, painted green at same price as porcelain enamel.

Specular Alzak reflectors symmetric and asymmetric can be supplied upon request.

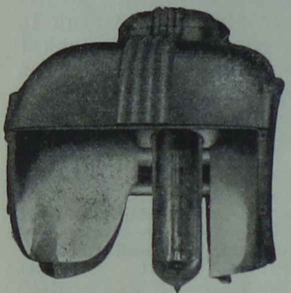
Type LN Streethoods are equipped with leads. If leads are not required **$1.00** should be deducted for their omission.

WESTINGHOUSE HIGHWAY LIGHTING EQUIPMENT

SODIUM HIGHWAY LUMINAIRES



Pole Side



End View—Showing Reflector and Lamp Arrangement

For highway, bridge and intersection lighting. Basic parts are: a canopy, body with reflector supports, reflector system, sodium lamp socket and thermostat, capacitor, film protective device and flask support.

Canopy cast iron, ornamental in design, with top section tapped for 1¼-inch pipe. Body is cast aluminum, attached to canopy by four bolts. Reflector supports are four cast aluminum legs screwed to body. Light distribution is asymmetric through two top and two side reflectors. Beams directed approximately 160° apart horizontally and 20° below vertical. Reflectors are made of Alclad aluminum sheets and treated by the Alzak Process.

Thermostat inside canopy permits heaters or cathodes of Sodium lamp to attain proper temperature before arc is established. Thermostat contacts are normally closed, but are open from one to two minutes after lamp circuit is energized and permit establishment of an arc circuit.

Lamps may be either the 6,000 lumen NA-10 or 10,000 lumen NA-11. In either case, a No. 60 flask should be used to assure maximum light output.

SODIUM LUMINAIRE—WITHOUT LAMP OR FLASK

Complete Unit

Trans. Lumen	Amps.	Volts	Prim. Cycle	Catalog No. (EW)	Catalog No. (IW)	Shpg. Wt. Lbs.
Straight series type, complete with insulator......				**891109**	**1121245**	100
10M/6M	6.6	......	60	**891234**	**1121246**	125
10M/6M	....	115	60	**891235**	**1121247**	120
10M/6M*	....	115	60	**891236**	**1121248**	125

*Capacitor.

Prices furnished on request.

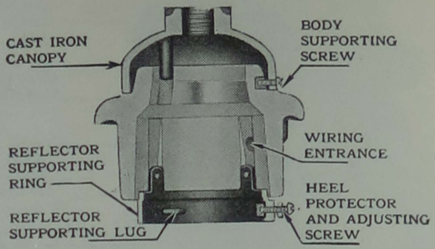
LOADING FOR TYPE CP POLE TYPE REGULATORS

	6000 Lumens Sodium Vapor Lamp		10000 Lumens Sodium Vapor Lamp	
Kw. Rating	With Transformer	Straight Series	With Transformer	Straight Series
3	11	12	9	10
5	19	22	15	18
7.5	29	34	23	27
10	37	43	30	35
15	57	66	46	53
20	76	88	61	71
25	96	110	77	89
30	114	133	92	107

WESTINGHOUSE STREETHOODS

UNIVERSAL STREETHOODS

For Series or Multiple Circuits



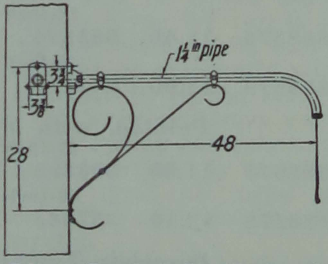
The Universal streethood consists of a porcelain body and cast-iron canopy and a reflector supporting ring. Sockets are not included and should be ordered separately. This streethood is adaptable to series or multiple circuits and is therefore named Universal.

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
346334	With ¾-inch Canopy........	10	**$8.65**
346335	With 1¼-inch Canopy........	10	**8.65**

WESTINGHOUSE STREETHOOD BRACKETS

The complete bracket is hot galvanized. Scroll is fastened to the bracket scroll collars which permit adjustment for pole rake. Three ½-inch lag screws are required for mounting on wood poles.

EDISON BRACKET



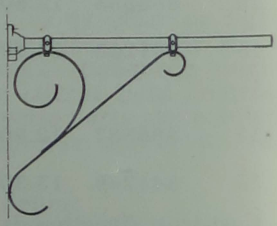
Edison Bracket, Double Scroll

Consists of a 1¼-inch pipe with pole plate which may be inner-wired, and either a single or double scroll of heavy material.

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
340240	Double Scroll (4 ft.)..........	30	**$10.10**
340347	Single Scroll (4 ft.)..........	24	**8.40**
888372	Double Scroll (6 ft.)..........	40	**12.80**
888373	Double Scroll (8 ft.)..........	52	**19.35**

STRAIGHT PIPE BRACKET

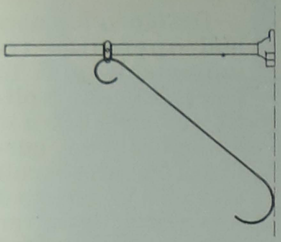
Consists of 1¼-inch pipe bracket with pole plate and double strap scroll.



Cat. No.	Description	Price Each
1120840	Double Strap Scroll (4 ft.)......	**$8.90**
1120841	Double Strap Scroll (6 ft.)......	**12.50**
1120842	Double Channel Scroll (8 ft.)......	**16.45**

WESTINGHOUSE STREETHOOD BRACKETS

STRAIGHT PIPE BRACKET

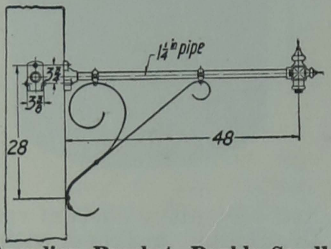


Consists of 1¼-inch pipe bracket and single strap scroll.

Cat. No.	Description	Price Each
1120839	Single Scroll (4 ft.)	$7.20

ARCADIAN BRACKET

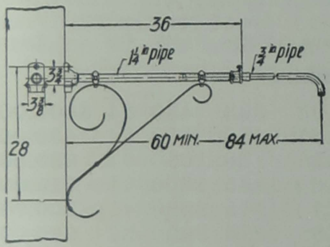
Consists of a 1¼-inch pipe with pole plate which may be inner-wired and an ornamental headpiece with 1¼-inch pipe nipple and either a single or double scroll of heavy material.



Arcadian Bracket, Double Scroll

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
340243	Double Scroll (4 ft.)	32	$14.90
340343	Single Scroll (4 ft.)	36	13.20
888378	Double Scroll (6 ft.)	42	16.10
342559	Double Scroll (8 ft.)	54	24.35

BOULEVARD TELESCOPE BRACKET



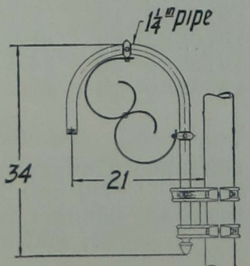
Boulevard Bracket, Double Scroll

Consists of a section of 1¼-inch pipe into which is telescoped a right angle bend section of ¾-inch pipe to permit adjustment of the lighting unit 5 to 7 feet from the pole. A pole plate which may be inner-wired, and either a single or double scroll of heavy material is included in the assembly.

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
340254	Double Scroll	39	$13.00
340345	Single Scroll	33	11.30

POLE CROOK

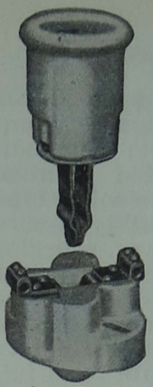
Consists of a 1¼-inch pipe bend with pole plate arranged to permit adjustment for pole rake. A double ornamental scroll with collar is also included in the assembly. Furnished for either wood or steel pole mounting.



Pole Crook for Steel Pole

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
340258	For Wood Pole	30	$13.35
340257	For 4 or 5-inch Steel Pole	38	16.15

SOCKETS AND RECEPTACLES



Standard Series Socket and Block Receptacle

STANDARD FILM SOCKET

The Standard film socket is used on series systems operated by constant current regulating transformers. When a lamp burns out, there is a momentary rise in potential across the socket terminals and the dielectric film between the socket prongs punctures to re-establish the circuit. All metal parts are heavily nickel-plated to prevent corrosion.

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
354660	For Mogul Base	¾	$1.40

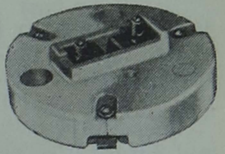
BLOCK RECEPTACLE

The receptacle consists of a porcelain block with a pair of spring clips, so arranged that they make contact under tension at all times. The receptacle is provided with binding posts, to which the line wires are connected. The clips are reinforced to assure their reliability in operation. All metal parts are heavily nickel-plated.

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
347603	For Standard Series Socket	1	$1.50

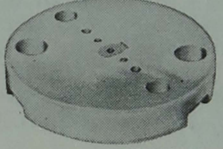
DISC RECEPTACLE

A six-inch disc with receptacle for standard series socket. All metal parts are heavily nickel-plated.



Cat. No.	Shpg. Wt. Lbs.	Price Each
345896	4	$1.50

DISC INSULATOR



A six-inch disc for mounting multiple sockets.

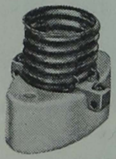
Cat. No.	Shpg. Wt. Lbs.	Price Each
336187	3	$1.00

MULTIPLE SOCKETS

Made of heavy porcelain with all metal parts nickel-plated.

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
334751	Mogul	1¼	$1.20
334749	Medium	1	1.00

MULTIPLE SKELETON SOCKET

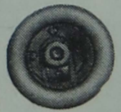


All metal parts are heavily nickel-plated to prevent corrosion

Cat. No.	Description	Shpg. Wt. Lbs.	Price Each
336179	Mogul	¾	$1.20

SOCKET EXTENSIONS

2½-inch socket extension for series or multiple sockets. All metal parts are nickel-plated.



Cat. No.	Socket	Shpg. Wt. Lbs.	Price Each
348738	Series	¾	$2.10
348715	Multiple	¾	2.10

FILM CUTOUTS

Isolating Transformer Type

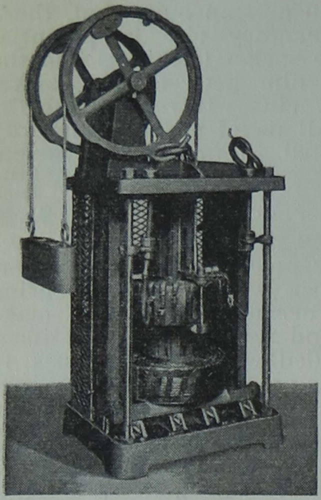
Cat. No. Single Film	Description	Std. Pkg.	Price Each
354591	1 -kw.	10	$0.065
354592	2 -kw.	10	.30
354593	3 -kw.	10	.30
354594	4 -kw.	10	.30
354595	5 -kw.	10	.30
354596	7½-kw.	10	.30
354589	10 -kw.	10	.30

Standard Socket Type

Cat. No.	Description	Price Each
354570	Medium voltage 80 to 400-volt puncture	.065
347909	Intermediate voltage 50 to 150-volt puncture	.065
354450	Low voltage 30 to 80-volt puncture	.065

WESTINGHOUSE CONSTANT CURRENT REGULATORS

STATION-TYPE RS—NON-AUTOMATIC



Designed for indoor sub - stations. Controlled from a manually operated control panel. Air-cooled type with a shell-type core made of a superior grade of carefully annealed and non-aging transformer steel.

Type RS regulators will regulate from full load to no load within 1%, plus or minus, of rated secondary current when operated at rated primary voltage and frequency and on unity power factor load. Have 2400-volt primary windings with a 90% tap for 2160 volts. The 2400-volt connection is for operation on 2280 to 2520 volts. The 2160-volt connection is for operation on 2250 to 2270 volts. An additional 110% primary tap is provided for reduced load connection.

Secondary winding provided with a 90% and an 80% tap. The 90% secondary tap gives improved power factor and efficiency on loads of 35 to 90% of regulator rating. Same improved performance on any secondary load from 0 to 90% of the regulator rating by using the 100% secondary connection and applying 2400 volts to the 110% primary tap or 2160 volts to the 2400-volt tap.

Further improvement in performance is obtained on loads of 0 to 80% of the kw. rating by connecting to the 90% secondary tap and applying 2400 volts on the 110% primary tap or 2160 volts on the 2400-volt primary connection. Station type regulators designed for 6.6 amperes secondary operate on 7.5 ampere secondary by using 90% secondary tap.

In accordance with AIEE and A.S.A. standards the regulators will operate at 50% load for 15 hours with a temperature rise not exceeding 55 degrees C. above ambient temperature.

6.6 Amperes Secondary, 60 Cycles
***2400-2160 Volts Primary**

Cat. No.	Rating Kw.	Primary† Amps.	Primary† Kv-a. Input	Secondary Load Volts	Secondary Ckt. Volts	Shpg. Wt. Lbs.	Price Each
1075113	5	2.63	6.32	758	930	725	**$960.00**
1075114	10	5.27	12.6	1515	1860	950	**1120.00**
1075115	15	7.93	19.0	2275	2790	1175	**1260.00**
1075116	20	10.6	25.4	3030	3720	1350	**1340.00**
1075117	25	13.1	31.6	3790	4650	1625	**1560.00**
1075118	30	15.8	37.9	4550	5580	1800	**1720.00**
1075119	35‡	18.4	44.3	5300	6500	1850	**2020.00**
1075120	40‡	21.1	50.7	6060	7450	1900	**2180.00**
1075121	50‡	26.4	63.4	7580	9320	2275	**2480.00**
1075122	60‡	31.6	75.8	9100	11100	2600	**2700.00**
1075123	70‡	36.9	88.6	10600	13020	2700	**3080.00**

*The 2400-volt connection is good for operation on 2280 to 2520-volts. The 2160-volt connection is good for operation on 2050 to 2270-volts.

†At all loads.

‡These ratings are built with two-circuit secondary. They may be operated either single or two-circuit.

WESTINGHOUSE CONSTANT CURRENT REGULATORS

TYPE CP—POLE TYPE

Designed for normal operating requirements and to meet impulse voltage conditions. Straight line current regulation, coil insulation and bushing flashover values coordinated for impulse voltage conditions, cylindrical copper bearing steel tank, spring mounted mechanism and demountable, non-siphoning bushings. Available in sizes from 2 to 30 Kw. with standard primary voltages of 2400 or 4800 volts and secondary current rating of 6.6 or 20 amperes. Regulators designed with single voltage primaries are provided with a 90% primary voltage tap. Regulators designed to deliver rated output at the secondary terminals to a 99½% power factor load at 5% below rated primary voltage. Temperature rise of windings will not exceed 55° C. when operated eight hours continuously at half load.

6.6 Ampere Secondary, 60 Cycles
Primary 2400 Volts (With 2160-Volt Tap)

Cat. No.	Rating Kw.	Primary Amps.	Primary Kv-a. Input	Secondary Load Volts	Secondary Ckt. Volts	Gal. Oil	Price Each
				Standard*			
1075050	2	1.24	2.98	303	430	34	**$600.00**
1075051	3	1.82	4.37	455	660	34	**630.00**
1075052	5	2.98	7.15	758	1080	34	**680.00**
1075053	7½	4.42	10.6	1135	1600	41	**720.00**
1075054	10	5.87	14.1	1515	2090	41	**800.00**
1075055	15	8.75	21.0	2270	3090	51	**920.00**
1075056	20	11.6	27.8	3030	4090	51	**1060.00**
1075057	25	14.4	34.6	3790	5110	74	**1230.00**
1075058	30	17.3	41.5	4550	6130	74	**1360.00**
				With De-Ion Gaps*			
1075077	2	1.24	2.98	303	430	34	**648.50**
1075078	3	1.82	4.37	455	660	34	**688.00**
1075079	5	2.98	7.15	758	1080	34	**738.00**
1075080	7½	4.42	10.6	1135	1600	41	**778.00**
1075081	10	5.87	14.1	1515	2090	41	**858.00**
1075082	15	8.75	21.0	2270	3090	51	**1003.50**
1075083	20	11.6	27.8	3030	4090	51	**1143.50**
1075084	25	14.4	34.6	3790	5110	74	**1329.50**
1075085	30	17.3	41.5	4550	6130	74	**1459.50**

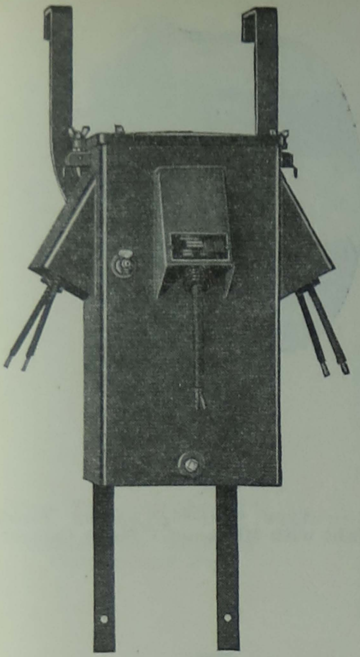
Hanger Irons†

1023390	Hanger Irons for use with 2, 3, 5, 7½ and 10 Kw. Transformers......	**$6.00**
1023133	Hanger Irons for use with 15, 20, 25, and 30 Kw. transformers........	**$6.00**

*Regulator catalog numbers include regulator complete with oil. Order hanger irons as a separate item by proper catalog number.

†Hanger iron catalog numbers include one complete set of hanger irons and bolts.

WESTINGHOUSE R-C-O-C REMOTE CONTROL OIL SWITCHES AND RELAYS



Standard Class 7500 Pole-Type Tank with Control Circuit Leads on the Front.

Specifications of oil switches or relays for remote control of outdoor lighting circuits must consider that these units are usually installed in locations not easily accessible. Such units are expected to afford years of positive operation without benefit of regular service inspections and tests. There must be a liberal insulation design, rugged mechanical structure and efficient electro-magnet design.

The control circuit to low voltage relays for multiple lighting circuits or to the primary switches for series lighting systems is energized by means of a reliable low voltage time switch with astronomic dial, by a light sensitive relay, or by manual operation where the control circuit originates in an attended station. Switches and relays also are available with series operating coils for cascade control from a convenient series circuit having the desired schedule. Oil switches and relays for this service are regularly classified as "Normally Closed" or "Normally Open." The position of the load contacts with the operating coil de-energized is considered normal.

R-C-O-C remote control oil switches afford a means of switching the primary to constant current transformers energizing series lighting systems. In addition R-C-O-C units include manually operated oil switches, protective relays for series lighting circuits: Type PC Primary Protective Cutout, Type LC-6.6 Series Loop Cutout, Series-multiple relays Types SR and SRR, Special series multiple relays Types SRS-1-125, SRRS-1-125 and multiple relays Types MR and MRR. These MRR relays carefully consider: Nonwelding contacts with long-life, low-resistance characteristics; high thermal capacity for all current-carrying parts and isolation of any necessary springs with high thermal capacity assemblies; solid load connections; efficient electro-magnet designs with low inrush current characteristics to assure minimum voltage drop; sturdy coil construction, and built-in lightning arresters.

Since multiple relays are not listed, orders and inquiries should include the following information: Type Designation, Normal Contact Position, Load Rating, Coil Voltage and Frequency, Built-in Protective Devices, Pole or Subway Case.

Only Class 7500 switches for control of primary circuits are listed. Complete data, information and prices on these and all other R-C-O-C remote control oil switches and relays will be furnished upon request.

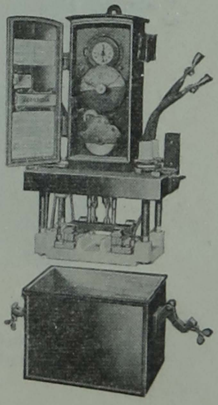
For Control of Primary Circuits

Cat. No.	R-C-O-C Type	Poles	Ampere Switch Rating 7500 Volt	4600 Volt	2300 Volt	220 Volt
Class 7500 Remote Control Oil Switches						
Normal Contact Position Open						
Coil Rating 6.6 Amp.						
343285	**AN-1-6.6**	1	15	35	60	100
343291	**AN-2-6.6**	2	15	35	60	100
343297	**AN-3-6.6**	3	No	35	60	100
Coil Rating 125 Volts—60 Cycle						
343287	**AN-1-125**	1	15	35	60	100
343293	**AN-2-125**	2	15	35	60	100
343299	**AN-3-125**	3	No	35	60	100
Normal Contact Position Closed						
Coil Rating 125 Volts—60 Cycle						
343313	**ANR-1-125**	1	No	35	60	100
343315	**ANR-2-125**	2	No	35	60	100
343317	**ANR-3-125**	3	No	35	60	100
Normal Contact Position Special						
Coil Rating 6.6 Amp.						
343347	**MN-1-6.6**	1	15	35	60	100
343359	**MN-2-6.6**	2	15	35	60	100
Coil Rating 125 Volts—60 Cycle						
343361	**MN-2-125**	2	15	35	60	100
343373	**ANAL-2-125**	2	15	35	60	100
Class 7500 Manually Operated Oil Switches						
Normal Contact Position Special						
890101	**AH-2**	2	25	50	75	125
890102	**AH-3**	3	No	50	75	125

Catalog numbers cover pole type weatherproof tank. Also, 6 gallons oil. Net weights with oil: Pole type 150 lbs., except No. 890101 which is 145 lbs.; Subway type 175 lbs., except manually operated, which are special. Prices on request.

ANDERSON ELECTRICALLY WOUND TIME SWITCHES

With Synchronous Motor Clock Mechanism



Timing mechanism controlled by self-starting synchronous motor. Separate motor winds spring mechanism which operates switch contacts. Both motors use same current supply and are supplied for either 110 or 220-volt, 60 cycles a-c. as desired. Hand tripper for independent tripping. Heating unit standard equipment, for use below 20° F. Standard time switch opens and closes circuit once every 24 hours. Twice on and off switch available, **$2.00** additional. Automatic season changing device available.

Type ECSL—2 or 3-Pole—Oil Break

Winn. Cir. A.C. 60Cy. 110V. Cat. No.	220V. Cat. No.	Amp.	Poles	Dimensions, In. Hght.	Wdth.	Dpth.	Wt. Lbs. Incl. Oil Net	Shp.
For Potentials Not Exceeding 3300 Volts A-C.								
11730	**11734**	25	2	22½	13½	8½	59	81
11731	**11735**	50	2	22½	13½	8½	59	81
11732	**11736**	25	3	23	14	8½	73	98
11733	**11737**	50	3	23	14	8½	73	98
For Potentials Not Exceeding 6600 Volts A-C.								
11740	**11744**	25	2	23	14	8½	73	98
11741	**11745**	50	2	23	14	8½	73	98
11742	**11746**	25	3	24½	19	8½	95	135
11743	**11747**	50	3	24½	19	8½	95	135

Prices, with or without wooden housings, on request.

WESTINGHOUSE AVIATION LIGHTING EQUIPMENT

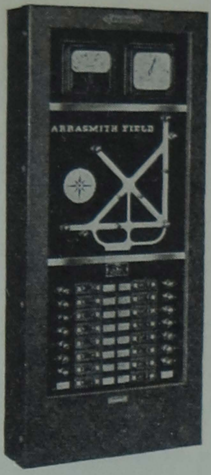


Fig. 1 — Airport Control Panel, Including Wind Direction and Velocity Indication for All Except Terminal Airports

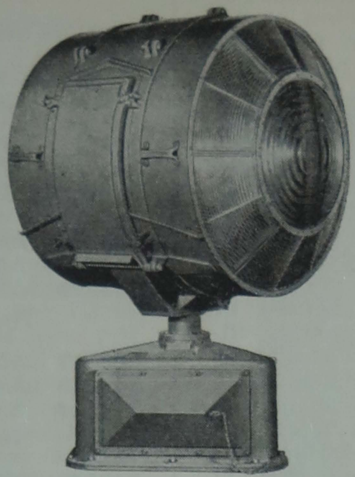


Fig. 2 — 36-Inch Rotating Beacon for Airways and Airports

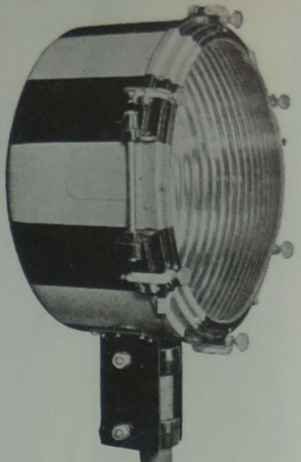


Fig. 3 — Type CAG-25 Landing Field Floodlight with Micrometer Beam Control

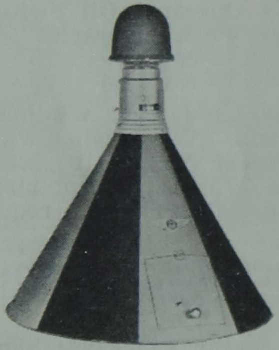


Fig. 4—Standard Series Boundary Marker Light

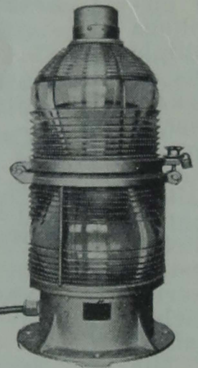


Fig. 5 — Auxiliary Airport and Hazard Warning Beacon for Code Identification at Airports and Marking Obstructions to Air Navigation

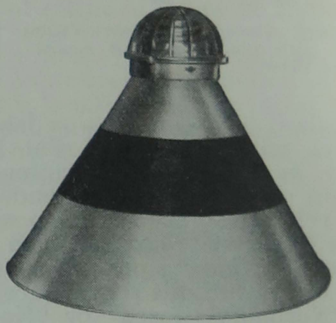


Fig. 6 — Luminous Tube Type Marker Cone with Self-Contained Power Supply for Marking Temporary Obstructions or Boundaries

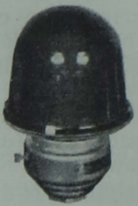


Fig. 7 — Single Multiple Obstruction Marker Light

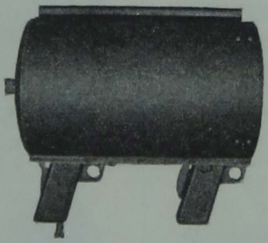


Fig. 8 — Portable Traffic Signal for Positive Control of All Airport Traffic

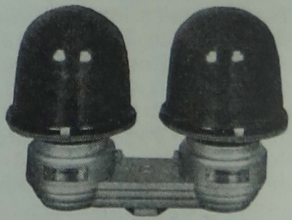


Fig. 9 — Duplex Multiple Obstruction Marker Light

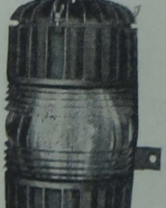


Fig. 10—Vapor-Proof Fresnel Hangar Floodlight

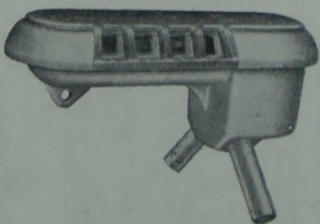


Fig. 11—Sodium Contact Light for Runway Marking

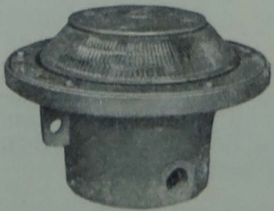


Fig. 12—Flush Marker Incandescent Contact Lights for Multiple Service for Small Airports

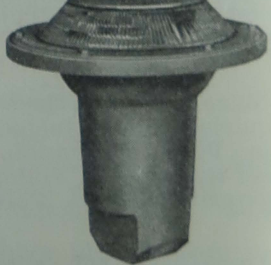
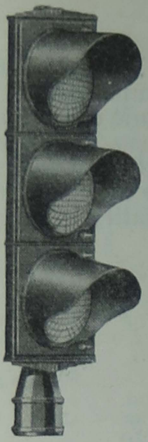


Fig. 13—Flush Marker Incandescent Contact Lights for Series Service for Boundary or Runway Outlines

Complete Information and Prices on Request.

CROUSE-HINDS TRAFFIC SIGNALS

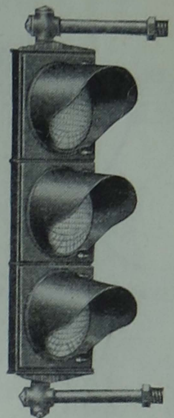


Type TSP-113D One-Way Signal
4-Inch Post Mounting
Underground Feed

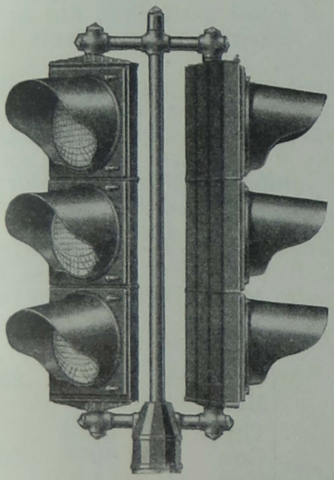
The illustrations on this page show only a few of the many signals and controls made by the Crouse-Hinds Company for traffic control. The complete line embraces non-adjustable signals having two, three, and four faces; and non-adjustable signals having from one to six faces. In addition to the usual colored lenses for normal traffic control, there is available a complete line of "WALK," "WAIT," and arrow lenses for controlling pedestrian and turning movements.

The Crouse-Hinds line of traffic controls is unusually complete and there is a control for every purpose, from a simple control for an isolated intersection to a complete, flexible, progressive traffic control system. Controls having either synchronous motor drive or induction motor drive are available for all types of traffic control systems.

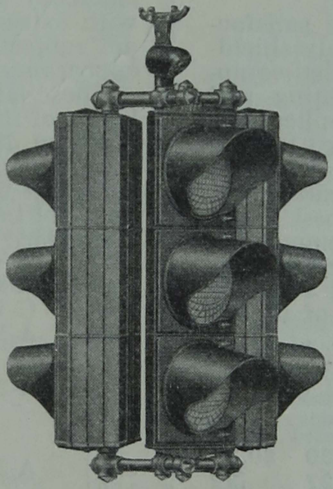
The traffic engineering department of the Crouse-Hinds Company is at your disposal in assisting in the solution of your traffic problems. Catalog 226 will prove invaluable to you in selecting the proper equipment for your needs.



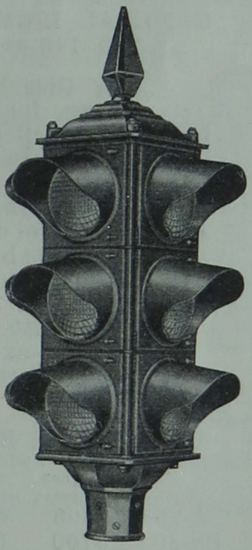
Type TSV-113D One-Way Signal
Vertical Bracket-Arm Mounting
Without Wire Outlet



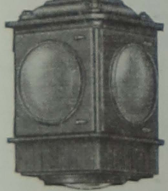
Type TRP-223D Two-Way Signal
4-Inch Post Mounting
Underground Feed



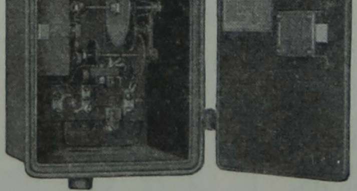
Type TRW-333D
Three-Way Signal
Span-Wire Mounting



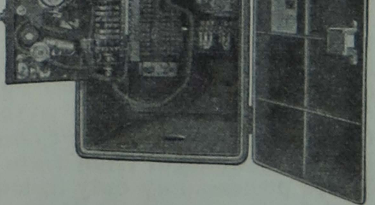
Type TSP-443D
Four-Way Signal
4-Inch Post Mounting



Type TIM-441D
Electric Beacon
With Base Light
Mast-Arm Mounting



Type TSS-18 Motor Flashing
Switch in Size 12 Cabinet
Door Open



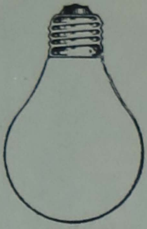
Type GS-3 Synchronous
Motor-Driven Control Complete
With Time-Switch for Flashing Amber

WESTINGHOUSE MAZDA LAMPS

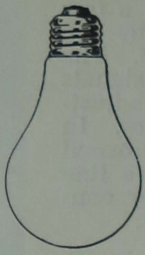
GENERAL LIGHTING SERVICE

110, 115 and 120 Volts

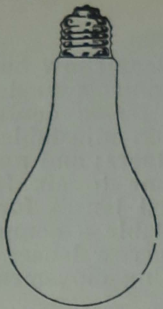
25 Watts



40 Watts



60 Watts



100 Watts

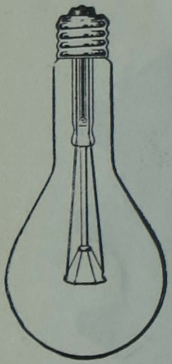
Inside Frosted

Watts	Bulb	Approx. Lumens	Screw Base	Std. Pkg.	Price Each
15	A-15	150	Med.	120	**$0.10**
25	A-19	270	Med.	120	**.10**
40	A-19	470	Med.	120	**.13**
50	A-19	660	Med.	120	**.13**
60	A-19	830	Med.	120	**.13**
75	A-21	1100	Med.	120	**.15**
100	A-23	1600	Med.	120	**.15**
150	A-25	2600	Med.	60	**.20**

Lamps of 40 watts and above are gas-filled and because of the bulb temperature should be protected from rain and snow when used out of doors.

GENERAL LIGHTING SERVICE

110, 115 and 120 Volts



Clear bulb lamps are satisfactory for use in adequately shielded reflectors or diffusing equipment; also in floodlighting and miscellaneous special applications requiring reasonably accurate control of light. White bowl lamps can be burned in any position, but lumen maintenance is best when burned base up. Recommended for use in open-type equipment such as RLM standard reflector to improve the quality of illumination.

Watts	Bulb	Approx. Lumens	Std. Pkg.	Price Each		
				Clear	Inside Frosted	White Bowl
Medium Screw Base						
150	A-25	2600	60	**$0.20**	**$0.20**	**$0.25**
200	PS-30	3700	60	**.27**	**.27**	**.32**
300	PS-35	5900	24	**.45**	**.50**	**.50**
Mogul Screw Base						
300	PS-35	5750	24	**.65**	**.70**	**.70**
500	PS-40	10000	12	**1.10**	**1.20**	**1.20**
750	PS-52	14500	6	**3.25**	**3.45**	**3.45**
1000	PS-52	21000	6	**3.50**	**3.70**	**3.70**
1500	PS-52	33000	6	**5.25**	**5.55**	**5.55**
Medium Bipost Base						
750	T-24	13500	6	......	**3.50**	......
1000	T-24	19500	6	......	**3.75**	......

COUNTRY HOME LIGHTING SERVICE

28-32 Volts—Inside Frosted

Watts	Bulb	Screw Base	Approx. Lumens	Std. Pkg.	Price Each
15	A-17	Medium	175	120	**$0.20**
25	A-19	Medium	340	120	**.20**
50	A-21	Medium	815	120	**.20**
100	A-23	Medium	1800	120	**.33**

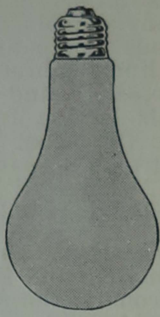
Orders should specify "Country Home—28-32 volts" to distinguish from train lighting lamps.

These prices apply only to lamps which are designed for an average voltage, as determined by the manufacturer, suitable for operation on 28-32 volt circuits, and do not apply to lamps ordered for individual voltage within this range.

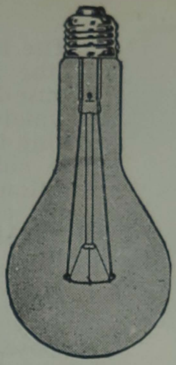
WESTINGHOUSE MAZDA LAMPS

MAZDA DAYLIGHT LAMPS

Mazda Daylight lamps have bulbs made of special blue glass to produce light approximating average daylight quality.



A-Bulb



PS-Bulb

Watts	Bulb	Approx. Lumens	Screw Base	Std. Pkg.	Price Each	
					Clear	Inside Frosted
60	A-19	540	Medium	120	....	**$0.25**
100	A-23	1050	Medium	120	....	**.25**
150	A-25	1700	Medium	60	**$0.40**	**.45**
200	PS-30	2400	Medium	60	**.70**	**.75**
300	PS-35	3700	Mogul	24	**1.10**	**1.20**
500	PS-40	6500	Mogul	12	**1.85**	**1.95**

TYPE D LAMPS

110, 115, and 120 Volts Only

Type D lamps are high quality lamps of proven efficiency and performance and are manufactured with extreme care and of good materials, but are not subjected to as rigid inspection for defects in appearance as Mazda lamps.

These lamps are shipped only in packages of 60 lamps of the same wattage, voltage and finish, and lamps of different wattage, voltage and finish may not be combined to make a standard package except that 30-watt, G-19 lamps of different colors (but not inside frosted) may be combined to make a standard package in multiples of six.

Watts	Bulb	Approx. Lumens	Screw Base	Std. Pkg.	Price Each
30	G-19*	335	Med.	120	**$0.10**
60	A-19†	840	Med.	120	**.10**
30 70 100	A-21‡	300 1050 1350	Three Con. Med.	120	**.25**
50 100 150	A-25‡	590 1550 2150	Three Con. Med.	60	**.30**

*Inside frosted or outside colored in red, blue, green, amber-orange, rose, white, ivory, and flametint. Outside colored lamps not recommended for outdoor use.

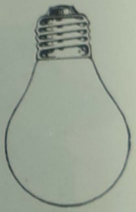
†Inside frosted, or white.

‡Inside frosted, three-lite.

ROUGH SERVICE

110, 115, and 120 Volts

For use where subjected to rough handling, such as with extension cords in garages and similar applications.



Inside Frosted

Watts	Bulb	Screw Base	Std. Pkg.	Price Each
50	A-19	Med.	120	**$0.25**
100	A-23	Med.	120	**.35**

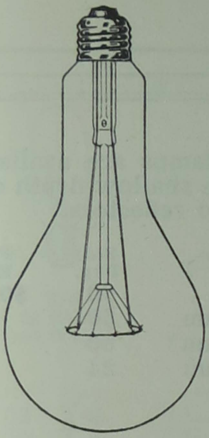
VIBRATION SERVICE

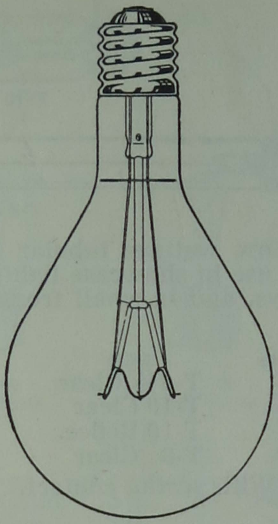
110, 115, and 120 Volts

Made to withstand high frequency vibration such as produced by high speed machinery. It is not recommended for horizontal burning.

Watts	Bulb (Clear)	Screw Base	Std. Pkg.	Price Each
50	P-19	Med	120	**$0.20**

WESTINGHOUSE MAZDA LAMPS
HIGH VOLTAGE SERVICE
220, 230, 240, 250 and 260 Volts


200 Watts


500 Watts

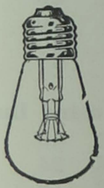
Medium Screw Base

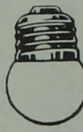
Watts	Bulb	Approx. Lumens	Std. Pkg.	Price Each Clear	Price Each Inside Frosted
25	A-19	215	120	......	$0.22
†50	A-21	480	120	......	.22
100	A-23	1250	120	......	.31
200	PS-30	2950	60	$0.60	.65
Mogul Screw Base					
300	PS-35	4850	24	1.00	1.10
500	PS-40	8750	12	1.80	1.90
750	PS-52	13500	6	4.25	4.50
1000	PS-52	19500	6	4.75	5.00

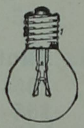
†This lamp in 275 and 300 volts for mine lighting service can be obtained at a list price of **$0.33.**

These lamps will operate in any position of burning, but the lumen maintenance, particularly in lamps of higher wattage sizes, is best when burned vertically base up.

SIGN AND DECORATIVE SERVICE
110, 115, and 120 Volts


S-14 Bulb


G-11 Bulb


S-11 Bulb

Watts	Bulb	Screw Base	Std. Pkg.	Price Each Clear	Price Each Inside Frosted	Price Each Inside Colored
6	S-6	Cand.	120	$0.15	....	....
6	S-14	Med.	120	.15	$0.15	$0.20*
7	C-7	Cand.	120	.10†	......	......
7½	G-11‡	Med.	120	....	......	......
10	S-11	Inter.	120	.15	......	.20ϕ
10	S-14	Med.	120	.13	.13	.18*
25	A-19	Med.	120	....	.10	.19▲

*Supplied inside colored in red, blue, green, yellow, amber-orange and old rose.

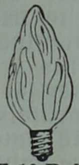
†Supplied also in white at **$0.10.**

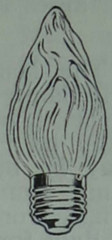
‡Supplied in outside red and outside white at **$0.10.**

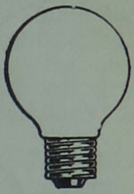
ϕSupplied inside colored in red, blue, green, yellow, amber-orange, flametint, and white.

▲Supplied inside colored in red, blue, green, yellow, amber-orange, flametint, ivory and old rose.

WESTINGHOUSE MAZDA LAMPS
DECORATIVE LUMINAIRE SERVICE
110, 115 and 120 Volts


F-10 Bulb


F-15 Bulb


G-Bulb

These lamps are adapted to many decorative and ornamental fixtures used in homes, clubs, lobbies, foyers and public buildings, where the bulb shape is related to the artistic design of the luminaire. They are not recommended for outdoor use.

Watts	Bulb	Screw Base	Std. Pkg.	†Price Each
15	F-10	Cand.	60	$0.20
25	F-15	Med.	120	.15
25	G-18½	Med.	120	.30
25	G-25	Med.	60	.35
40	G-25	Med.	60	.35

Bulb Finishes: White, ivory and flametint.

†These prices apply only to the manufacturer's standards of outside coating.

NATURAL COLORED LAMPS
110, 115, and 120 Volts

The four lamps in natural colored clear glass bulbs listed below cover a large percentage of present demand for natural colored lamps. The prices shown are for the manufacturer's standard colored glass only.

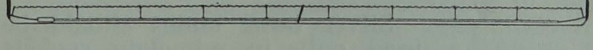
Watts	Bulb	Price Each Amber*, Blue† and Green	Price Each Ruby*
10	S-14	$0.40	$0.50
25	A-19	.40	.50
40	A-21	.40	.50
§60	A-21	.45	.55

*Natural ruby and natural amber lamps are regularly furnished in the light shade. Dark ruby and dark amber lamps used in photographic work will be furnished, only when definitely specified, at the same price.

†Does not include daylight blue or photographic blue.

§This lamp not to be burned in enclosing globe.

MAZDA LUMILINE LAMPS
110, 115, and 120 Volts



Special sockets or "lamp holders" of small dimensions can be set snugly back to form continuous lines of clear or colored light of low brightness. The lamps may be used either exposed or in narrow trough reflectors. Their application is ideally suited to modern decorative concepts for built-in illumination or applied decoration where space limitation is a factor; for lighted displays, niches, small coves, signs, mirrors, paintings, luminous panels, and the like.

Watts	Bulb	Max. Over-all Length Inches	Base	Std. Pkg.	Price Each
30	T-8 Clear*	17¾	Disc	24	$0.85
40	T-8 Clear*	11¾	Disc	24	.75
60	T-8 Clear*	17¾	Disc	24	.85

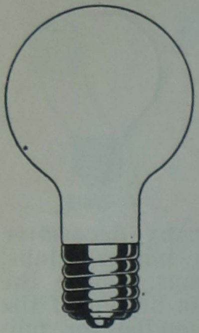
*Supplied also inside frosted and in the following inside colors—white, straw, orange, moonlight blue, emerald, and surprise pink at **$0.10** additional to price of corresponding clear lamp.

WESTINGHOUSE MAZDA LAMPS

MAZDA THREE-LITE LAMPS

110, 115, and 120 Volts—Inside Frosted

For Indirect Portables and Wall Urns



G-30

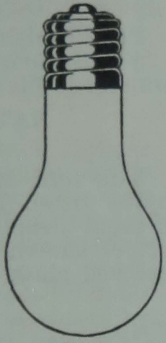
The Mazda Indirect Three-Lite lamp permits the use of three levels of illumination from its two filaments which may be burned either at the same time or separately, a range from moderate amount of light for decorative value to full brilliancy, depending on the activities for which the light is desired. Can be burned only in the base down position.

Watts	Bulb	Base	Std. Pkg.	Price Each
100-200-300	G-30	3-Contact Mog.	24	$0.60

MAZDA THREE-LITE LAMPS

110, 115, and 120-Volts—Inside Frosted

These lamps are particularly applicable in spaces where flexibility in intensity of lighting is desirable, such as retail stores. Either filament can be used separately for obtaining moderate intensities of illumination or the two filaments can be used together to obtain high intensities.

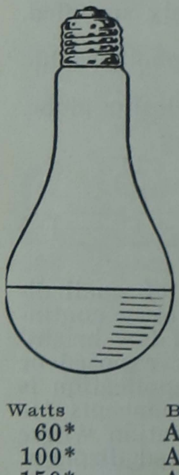


PS-25

Watts	Bulb	Base	Std. Pkg.	Price Each
50-100-150	PS-25	3-Contact Mog.	60	$0.45

SILVERED BOWL MAZDA LAMPS

110, 115 and 120 Volts



Silvered bowl lamps have a permanent coating of mirror silver on the bowl. This coating shields the brilliant filament and forms a highly efficient reflecting surface as an integral part of the lamp. This reflecting surface does not dull or tarnish throughout the life of the lamp.

Silver bowl lamps should be used only in porcelain sockets and fixtures so designed that the temperatures of the lamp and fixture do not exceed limits for satisfactory operation.

Watts	Bulb	Base	Std. Pkg.	Price Each
60*	A-19	Medium	120	$0.23
100*	A-23	Medium	120	.25
150*	A-25	Medium	60	.45
200†	PS-30	Medium	60	.62
300†	PS-35	Mogul	24	1.10
500†	PS-40	Mogul	12	1.70
750†	PS-52	Mogul	6	4.75
1000†	PS-52	Mogul	6	5.00

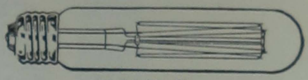
*These lamps will operate in any position, but lumen maintenance is best when burned vertically base up.

†Burn base up only.

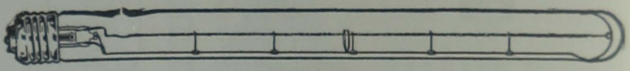
WESTINGHOUSE MAZDA LAMPS

TUBULAR BULB MAZDA LAMPS

110, 115, and 120 Volts



T-10 Bulb



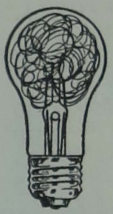
T-8 Bulb

Low wattage tubular bulb lamps are available for use in showcase lighting, in shallow depth displays, and in small trough-type reflectors.

Watts	Bulb	Screw Base	Std. Pkg.	Price Each
25	T-6½ Clear	Inter.	60	$0.35
25	T-10 Clear	Medium	60	.25
25	T-10 Reflec.	Medium*	60	.50
40	T-8 Clear	Medium	24	.85

*With spring contact.

MAZDA PHOTO LAMPS



Photoflash

Photoflood

Mazda Photoflash Lamps—Clear Bulb

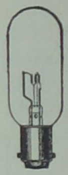
Lamp No.	Voltage Range	Bulb	Lgth. In.	Base	Rated Life at 115V. Hours	Std. Pkg.	Price Each
5	3*	B-11	2½	SC Bay	....	60	$0.13
11A	3-125	A-15	4	Med.	....	60	.13
16A	3*	A-17	4¼	Med.	....	60	.15
21	3-125	A-19	5	Med.	....	60	.15
21B†	3-125	A-19	5	Med.	....	60	.20
31	3*	A-21	5⅜	Med.	....	60	.23
75	3-125	PS-35	8 5/16	Med.	....	24	.55
Mazda Photoflood Lamps¶—Inside Frosted Bulb							
1	105-120	A-21	4 15/16	Med.	3	60	.15
2	105-120	A-25	6 15/16	Med.	6	24	.30
R-2	105-120	R-40	6½	Med.	6	12	.85
4	105-120	PS-35	9 7/16	Mog.	10	24	1.20
B-1	105-120	A-21	4 15/16	Med.	3	60	.30
B-2	105-120	A-25	6 15/16	Med.	6	24	.60
B-4	105-120	PS-35	9 7/16	Mog.	10	24	1.75
Mazda Photographic Enlarger Lamps—White Bulb							
111	105-120	S-11	2⅜	SC Bay	25	120	.35
211	105-120	A-21	4¾	Med.	100	60	.25
212	105-120	A-21	4¾	Med.	100	60	.25
213	105-120	A-21	4¾	Med.	2	60	.25
301	105-120	PS-30	8 3/16	Med.	100	24	.75
302	105-120	PS-30	8 3/16	Med.	100	24	.75
303	105-120	PS-30	8 3/16	Med.	6	24	.75

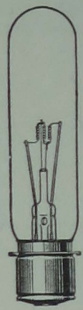
*Flash with two or more dry cells only. †Color temperature 6000-7000 K. ¶Photographically, the light from Photoflood lamp No. 1 is about equivalent to that obtained from a 750-watt general service lamp, No. 2 is the equivalent of a 1,000-watt lamp, while the No. 4 is at least 2½ times as effective as the 1,000-watt general lighting lamp.

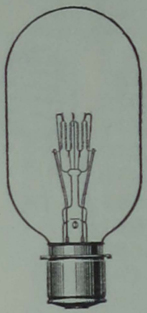
WESTINGHOUSE MAZDA LAMPS

MOTION PICTURE AND STEREOPTICON PROJECTION SERVICE

100, 105, 110, 115, and 120 Volts


T-8
50 Watts
100 Watts


T-10
200 Watts


T-20
500 Watts

Watts	Bulb	Screw Base	Light ‡Center Lgth., In.	Std. Pkg.	Price Each
100	T-8	S.C. Bay. Cand.	1⅜	24	**$0.80**
¶200	T-8	S.C. Bay. Cand.	1⅜	24	**1.30**
*200	T-10	Med. Prefocus	2 3/16	24	**2.00**
¶300	T-10	Med. Prefocus	2 3/16	24	**2.70**
¶500	§T-10	Med. Prefocus	2 3/16	24	**3.50**
*500	T-20	Med. Prefocus	2 3/16	6	**2.20**
¶750	§T-12	Med. Prefocus	2 3/16	24	**4.10**
¶1000	§T-12	Med. Prefocus	2 3/16	24	**6.00**
¶1000	T-20	Med. Prefocus	2 3/16	6	**4.50**
†1000	T-20	Mog. Prefocus	3 7/16	6	**4.75**

These lamps are designed for operation in the vertical position base down but can be burned within 25 degrees of this position without materially affecting their performance.

¶This lamp should be used only in equipment designed to give an adequate cooling.

*Medium screw base can be supplied with a light center length of 3 inches at the same price.

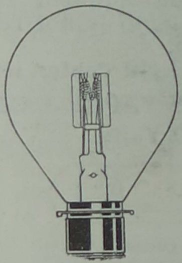
†Mogul screw base can be supplied with a light center length of 4¾ inches at the same price.

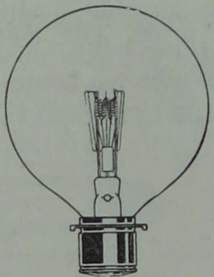
‡Light center length for prefocus base is distance from center of light source to top of base fin; for bayonet base to top of base pins; for screw base to extreme end of base cap.

§Clear bulb with opaque end.

SPOTLIGHT SERVICE

110, 115, and 120 Volts


P-Bulb


G-Bulb

Watts	Bulb	Screw Base	Light Center Lgth., In.	Std. Pkg.	Price Each
100	P-25	Med.	3	60	**$0.80**
250	G-30	Med.	3	24	**1.15**
400	G-30	Med.	3	24	**1.75**
1000	G-40	Mog.	4¼*	12	**5.00**

Mogul screw base lamp, lamp with light center length of 5¼ inches, can be supplied at same price. Orders should specify light center length.

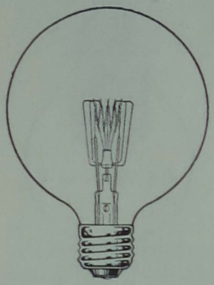
These lamps can be burned in any position from vertical base down to horizontal.

Order must specify "Spotlight".

WESTINGHOUSE MAZDA LAMPS

FLOODLIGHTING SERVICE

110, 115, and 120 Volts

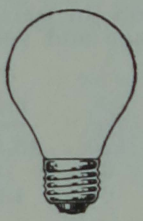

G-Bulb

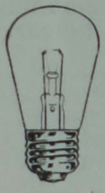
Made with the filament concentrated into a small space for use in floodlighting equipment designed to give a narrow beam of light which can be thrown a relatively long distance.

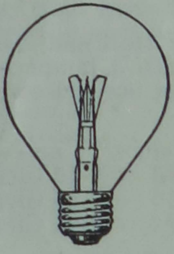
The 250-watt, G-30 bulb and the 500-watt, G-40 bulb can be burned in any position except within 45 degrees of vertical base up. The 1000-watt, G-40 bulb can be burned in any position from vertical base down to horizontal.

Watts	Bulb	Screw Base	Light Center Lgth., In.	Std. Pkg.	Price Each
250	G-30	Medium	3	24	**$1.15**
500	G-40	Mogul	4¼	12	**2.10**
1000	G-40	Mogul	5¼	12	**5.00**

TRAIN AND LOCOMOTIVE SERVICE


A-Bulb


S-14 Bulb


P-25 Bulb

Trainlighting — Trainlighting lamps are so designed that they should be operated at their rated voltage. Voltage regulating devices should be adjusted to maintain this voltage at the lamp socket, otherwise unsatisfactory lamp performance will result.

Locomotive Headlighting — When operated at their rated voltage in suitable headlight equipment, protecting them from excessive vibration, these lamps will furnish satisfactory service. Care must be exercised to prevent water from striking the bulb while hot. The 250-watt lamp is intended for use in road locomotives, while the 100-watt size is recommended for switching locomotives.

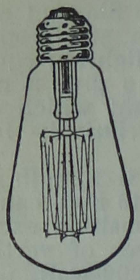
Locomotive Cab Lighting—Designed to insure ruggedness rather than efficient light production. It should be used for all locomotive lighting purposes except headlighting.

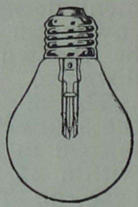
Train—30, 32, 60 and 64 Volts

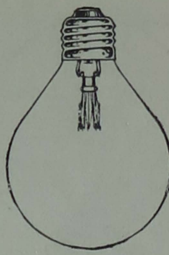
Inside Frosted

Watts	Bulb	Screw Base	Std. Pkg.	Price Each
15	A-17	Medium	120	**$0.20**
25	A-19	Medium	120	**.20**
50	A-21	Medium	120	**.20**
100	A-23	Medium	120	**.33**
Locomotive Cab—34 Volts				
15	S-14 Clear	Medium	120	**.20**
Locomotive Headlight—32 Volts				
100	P-25 Clear	Medium	60	**.90**
250	P-25 Clear	Medium	60	**1.40**

WESTINGHOUSE MAZDA LAMPS
STREET RAILWAY SERVICE
105, 110, 115, 120, 125 and 130 Volts


S-Bulb


A-Bulb


P-Bulb

CAR LIGHTING
For operation 5-in-series on the trolley voltage for general illumination, destination signs, etc. The 36 and 56-watt lamps provide more satisfactory performance when operated in the base up vertical position.

Watts	Bulb	Screw Base	Std. Pkg.	Price Each
23	S-17 Clear	Medium	120	**$0.20**
36	A-21 Inside Frosted	Medium	120	**.17**
56	A-21 Inside Frosted	Medium	120	**.20**

HEADLIGHTING
Headlight lamps are for operation in series with 4 lamps of corresponding wattage and voltage used elsewhere in the car.

Watts	Bulb	Screw Base	Light Center Length	Std. Pkg.	Price Each
36	A-19 Clear	Medium	2 3/16	120	**$0.55**
56	P-25 Clear	Medium	2 1/16	60	**.80**
94	P-25 Clear	Medium	2 1/16	60	**1.00**

ARC-RESISTING AND CUTOUT
Arc-resisting lamps are of the gas-filled type and therefore are more efficient initially and throughout their life than vacuum type lamps and are for general illumination of cars, shops, storage yards, etc. When used for interior car lighting, fixtures totally enclosing the lamp are recommended.

The 30-volt cutout lamps, also gas-filled, produce more light per watt than the vacuum type lamp for 5-in-series operation. They are for use in series and the total sum of the rated lamp voltage should equal the circuit voltage.

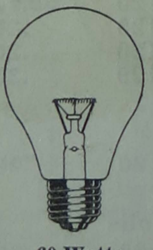
Arc-Resisting

Watts	Bulb	Screw Base	Std. Pkg.	Price Each
101	A-23 Inside Frosted	Medium	120	**$0.40**
201	PS-30 Clear	Medium	60	**.75**
301	PS-35 Clear	Mogul	24	**1.30**

Cut-Out—30 Volts

Amps.	Bulb	Screw Base	Std. Pkg.	Price Each
1.0	A-19 Inside Frosted	Medium	120	**.30**
1.6	A-21 Inside Frosted	Medium	120	**.35**

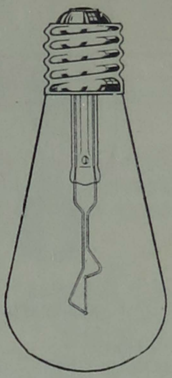
TRAFFIC SIGNAL SERVICE
110, 115 and 120 Volts

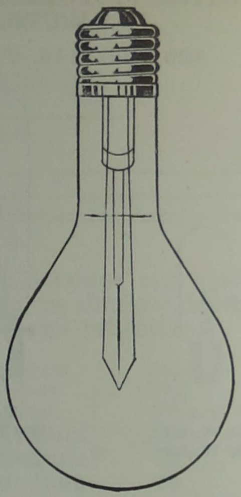

60 Watts A-21 Bulb

The 60-watt traffic signal lamp is the recognized standard because it provides a sufficiently high wattage in a lamp of short light center to make possible a signal indication of requisite brightness.

Watts	Bulb	Screw Base	Std. Pkg.	Price Each
60	A-21 Clear	Med.	120	**$0.25**

WESTINGHOUSE MAZDA LAMPS
STREET SERIES LIGHTING SERVICE


S-Bulb


PS-Bulb

Street series lamps are designed to meet special requirements of street lighting service. Filaments are formed to produce a favorable light distribution. The mogul screw base is applied in the interest of strength to the smaller as well as the larger lamps. With operation at constant current, bulb blackening is compensated for by a slow increase in wattage and filament temperature, hence the light output is maintained throughout life at a high percentage of initial value.

Street series lamps are rated in lumens; that is, in total quantity of light emitted. All street lighting contracts should refer to series lamps in terms of their lumen rating.

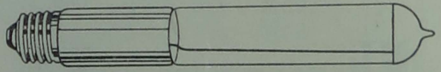
Amps.	Lumens	Average Volts	Bulb	Light Center Length	Std. Pkg.	Price Each
6.6	1000	9.5	PS-25	5⅜	60	**$0.40**
6.6	2500	21.6	PS-35	7	24	**.80**
6.6	4000	31.9	PS-35	7	24	**.95**
6.6	6000	47.3	PS-40	7	12	**1.35**
15	4000	13.7	PS-35	*7	24	**1.05**
20	6000	14.9	PS-40	*7	12	**1.45**
20	10000	25.0	PS-40	*7	12	**1.85**
20	15000	36.8	PS-40	*7	12	**2.55**
20	25000	60.7	PS-52	9½	6	**4.80**

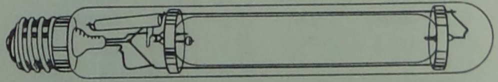
Above lamps fitted with mogul screw base.

The 15 and 20 ampere lamps are designed for base up burning position. Lamps ordered for base down burning position may be supplied at the same price. The 25000 lumen lamp is not recommended for base down burning.

*Base down lamp—6¼ inch light center length.

HIGH INTENSITY MERCURY VAPOR LAMPS
110-120 or 200-250 Volts


250 Watts—T-9 Bulb, Clear


400 Watts—T-16 Bulb, Clear

Watts	Bulb	Screw Base	†Lumens	Freq. Cycles	‡Std. Pkg.	Price Each
100	T-10	1864	3,500	60	6	**$ 9.50**
250	T-9	Med.	7,500	60	12	**8.50**
400	T-16	Mog.	16,000	60	6	**11.00**

†These are design values. Electrical rating will change slightly with different line voltages.

‡A standard package shall consists of lamps of the same specifications.

Burning position: 100 and 250-watt, any; 400-watt, base up. Lamps also available for base burning down. Orders should specify burning position.

WESTINGHOUSE MAZDA LAMPS
DISCOUNT SCHEDULE
To Purchasers Under Forms E and CE Contract

Net Value (Exclusive of transportation charges)	Discounts Std. Pkg. Quantities	Discounts Brok. Pkg. Quantities	Minimum Net Purchases under each Basis to reach Next Higher Basis
Primary (Less than $150)	20%	15%	$ **153.85**
150	22%	17%	**256.58**
250	24%	19%	**513.52**
500	26%	21%	**1,027.78**
1,000	28%	23%	**2,571.43**
2,500	30%	25%	**5,147.06**
5,000	32%	27%	**10,149.25**
10,000	33%	28%	**20,303.03**
20,000	34%	29%	**30,461.54**
30,000	35%	30%	**50,781.25**
50,000	36%	31%	**101,587.30**
100,000	37%	32%	**152,419.35**
150,000	38%	33%	**228,688.53**
225,000	39%	34%	**305,000.00**
300,000	40%	35%	----------------

DISCOUNT SCHEDULE
LARGE LAMP PURCHASERS

Standard Package Discounts

A. **Large Mazda Lamps.** Standard package discounts may be allowed on the purchase of any quantity of any large Mazda lamps for delivery at one time to one place, provided such purchase includes at least one (1) standard package quantity defined as follows:

(1) A standard package quantity is that "Standard Package Quantity" designated for each lamp in the manufacturer's price schedules, and the lamps in such a standard package quantity may be only of one voltage and finish.

(2) An assortment of different large Mazda lamps which have the same designated "Standard Package Quantity", provided the total quantity of lamps in the assortment is equal to the designated "Standard Package Quantity", and lamps in such a standard package quantity may be of different voltages and finishes of bulb.

B. **Type D Lamps.** Standard package discounts on Type D lamps may be allowed only on any purchase of an exact "Standard Package Quantity" (or multiple thereof) as designated for each lamp in the manufacturer's price schedules, and the lamps in such a standard package may be only of one voltage and finish of bulb.

An assortment of Type D lamps to determine a standard package quantity may be made only of the 30-watt G-19 bulb lamps of different colors (but not inside frosted) provided the quantity of lamps of any one color is a multiple of six and the total quantity of the assortment is 60.

C. Under no circumstances may Type D lamps and large Mazda lamps be combined for the purpose of allowing standard package discounts.

TO PURCHASERS WITHOUT CONTRACT

Any purchase of less than $5.00 list value	0%
Any purchase of $5.00 list value but less than standard package quantities for delivery at one time to one place	15%
Any purchase of at least one standard package quantity as provided above for delivery at one time to one place	20%

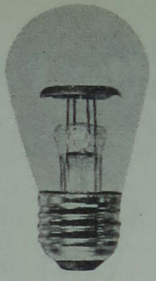
EXTRA CHARGES FOR SPECIAL FEATURES
White, All Frosted and White Bowl Lamps

List Price of Clear or Inside Frosted Lamps	List Additional Charge for White, All Frosted or White Bowl	List Price of Clear or Inside Frosted Lamps	List Additional Charge for White, All Frosted or White Bowl
Less than $1.00	**$0.05**	$4.00 to $4.99	**$0.25**
$1.00 to 1.99	**.10**	5.00 to 5.99	**.30**
2.00 to 2.99	**.15**	6.00 to 6.99	**.35**
3.00 to 3.99	**.20**	7.00 to 7.99	**.40**

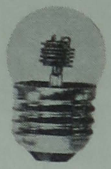
The above prices apply only for the Manufacturer's standard spray coatings.

Special Lamps. Any Mazda lamp requiring a change in construction from the standard that is, in voltage (except 125 and 130 volts supplied at no extra charge), bulb shape or finish, basing or special etching will take a special price, which may be obtained upon application. All orders for special lamps except special etching may be filled either short or in excess, within the limits of 10 percent, except that on orders for 10 lamps or less there will not be any shortage or excess. Orders for Mazda lamps with special etching may be filled either short or in excess of 5 percent; except that on orders for less than 40 lamps the shortage or excess may equal but not exceed two lamps.

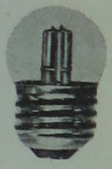
WESTINGHOUSE NEON GLOW LAMPS



S-14—2 Watts



G-10—1 Watt



G-10—½ Watt

The complete line of Westinghouse Neon Glow Lamps are ideal for such purposes as pilot lights, location markers, current indicators for household and industrial electrical appliances, signal lamps for call systems, night lights, house numbers and for exit lights. The Neon Glow Lamp has a low power consumption, long-life and low brilliancy.

The complete line of Neon Glow Lamps is available as shown in table below. The first four items in the lamps listed have proper resistance built within the base and may be burned on either A.C. or D.C. circuits with the exception that the ½-watt size operates on A.C. circuit only.

The N-1 lamp having no resistance built into the base must be connected to the following external resistance:

Line Voltage	Series Resistance
115	50,000 ohms
230	200,000 ohms
440	500,000 ohms
550	650,000 ohms

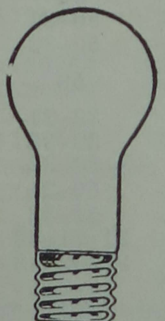
Watts	Bulb	Volts	Base	Unit Pkg.	Price Each
¼	T-4½	110-120	Cand. Screw	10	**$0.40**
½*	G-10	110-120	Med. Screw, Clear	10	**.40**
1	G-10	110-120	Med. Screw, Clear	10	**.40**
2	S-14	110-120	Med. Screw, Clear	10	**.50**
2	S-14	110-120	Med. Screw, Red	10	**.55**
3	S-14	110-120	Med. Screw, Clear	10	**.60**
3	S-14	110-120	Med. Screw, Red	10	**.65**

Type N-1 Lamp

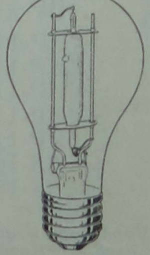
.1	G-6	115-550	Cand. Screw	10	**.15**

*Can be supplied in 1 watt size for 210-240 volt service.

WESTINGHOUSE SUNLIGHT LAMPS



S1—400 Watt



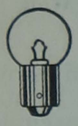
S4—100 Watt

Watts	Bulb	Base	Description	Std. Pkg.	Price Each
400	PS-22	Mogul	S1 I.F.	6	**$4.75**
100	A-21	Admedium	S4 Clear	6	**8.50**

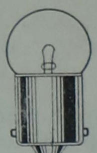
WESTINGHOUSE MINIATURE MAZDA LAMPS

AUTOMOBILE SERVICE

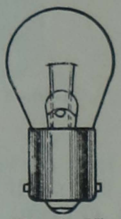
(Including Lamps for Ford Cars)



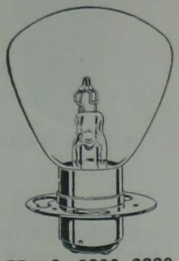
Mazda 55
G-4½ Bulb



Mazda 61, 63, 81
G-6 Bulb



Mazda 87
S-8 Bulb



Mazda 2320, 2330
Mazda 2520, 2530
RP-11 Bulb

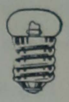
MAZDA Lamp No.	Bulb	Volts	C.P.	Price Each
55	‡G-4½	6–8	1½ Nom.	$0.07
61 62	G-6	3–4	2	.20
63	G-6	6–8	3	.07
64	G-6	6–8	3	.11
67	G-6	12–16	3	.12
68	G-6	12–16	3	.12
**75	G-6	7.5	3	.16
81	G-6	6–8	6	.10
82	G-6	6–8	6	.13
87	S-8	6–8	15	.15
88	S-8	6–8	15	.18
89 90	G-6	12–16	6	.15
93 94	S-8	12–16	15	.20
1000	RP-11	6–8	32–32	.19
1110	RP-11	6–8	21–21	.19
*1114	RP-11	6–8	21–21	.35
1116	RP-11	6–8	32–21	.19
1120	RP-11	12–16	21–21	.35
1122	RP-11	12–16	32–21	.35
1124	RP-11	12–16	32–32	.35
1129	S-8	6–8	21	.17
1130	S-8	6–8	21	.20
1133	RP-11	6–8	32	.19
1141 1142	S-8	12–16	21	.25
1143 1144	RP-11	12–16	32	.30
1158	S-8	6–8	21–3	.19
*1170	S-8	6–8	21–6	.45
*1172	RP-11	6–8	32–6	.40
1183	RP-11	6–8	50	.27
1184	RP-11	6–8	50	.30
1186	RP-11	6–8	50–21	.35
1188	RP-11	6–8	50–32	.35
1195 1196	RP-11	12–16	50	.45
2320	§RP-11	6–8	32–21	.30
2330	§RP-11	6–8	32–32	.30
2331	§RP-11	6–8	32–32	.30
2520	§RP-11	6–8	50–21	.45
2530	§RP-11	6–8	50–32	.45
3001	¶S-12	6–8	21–21–32	1.25
3003	¶S-12	6–8	32–32–32	1.25

*For Ford cars prior to March 1, 1929. ¶Fitted with 3-pin bayonet base. **Recommended for Bus and Taxicab service. §Fitted with D.C. bayonet base with prefocusing collar. ‡Fitted with miniature bayonet base. ▲Shielded bulb.

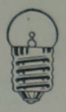
For all Automobile Service lamps, odd Mazda Lamp numbers represent S.C. base and even numbers D.C. base.

A unit package quantity shall consist of 10 lamps of the same Mazda Lamp Number or specification.

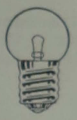
WESTINGHOUSE MINIATURE MAZDA LAMPS



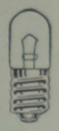
Mazda 1
FE-3¾ Bulb



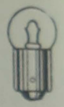
Mazda 10
Mazda 13
Mazda 14
G-3½ Bulb



Mazda 26
Mazda 31
G-4½ Bulb



Mazda 41
Mazda 42
Mazda 46
T-3¼ Bulb



Mazda 51
G-3½ Bulb

INDICATOR LAMP SERVICE

MAZDA Lamp No.		Bulb	Volts	Amps.	Price Each
50	(Clear)	G-3½	6–8	1 C.P.	$0.10
50R	(Coated Red)	G-3½	6–8	1 C.P.	.13
50G	(Coated Green)	G-3½	6–8	1 C.P.	.13
51	(Clear)	*G-3½	6–8	1 C.P.	.07
51R	(Coated Red)	*G-3½	6–8	1 C.P.	.10
51G	(Coated Green)	*G-3½	6–8	1 C.P.	.10

*Fitted with miniature bayonet base.

FLASHLIGHT SERVICE

MAZDA Lamp No.	Cell	Bulb	Volts	Amps.	Price Each
223 (1)	2	FE-3¾	2.2	0.25	$0.09
233 (10) (n)	2	G-3½	2.3	0.27	.09
13 (n)	3	G-3½	3.8	0.3	.09
14 (n)	2	G-3½	2.5	0.3	.09
502 (26)	4	G-4½	5.0	0.15	.10
31 (n)	5	G-4½	6.2	0.3	.10
112	1	TL-3	1.1	0.22	.09
*701	2	FE-3¾	2.2	0.25	.07
*710 (n)	2	G-3½	2.3	0.27	.07
*713 (n)	3	G-3½	3.8	0.3	.07
*714 (n)	2	G-3½	2.5	0.3	.07

*These lamps are not focal gauged. These lamps are packed 50 lamps of a type to a platform which constitutes the minimum quantity which will be shipped by the manufacturer. No voltage rating appears on the base of these lamps. The type of lamp is designated by the bead colors as follows—Mazda Lamp No. 701, white bead; 710, purple bead; 713, green bead and 714, blue bead.

All lamps are fitted with miniature screw base.

(n) Concentrated filament for focusing and non-focusing flashlights.

STANDARD DRY BATTERY SERVICE

Miniature Screw Base

MAZDA Lamp No.	Cell	Bulb	Volts	Amps.	Price Each
136 (19)	1	G-4½	1.3	0.6	$0.10
248 (35)	2	G-5½	2.4	0.8	.10

RADIO PANEL AND MISCELLANEOUS SERVICE

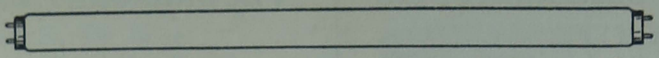
Miniature Screw Base

MAZDA Lamp No.	Bulb	Volts	Amps.	Price Each
41	T-3¼	2.5	0.5	$0.09
42	T-3¼	3.2	0.35	.12
44	*T-3¼	6–8	0.25	.09
46	T-3¼	6–8	0.25	.09

*Fitted with miniature bayonet base.

WESTINGHOUSE (FLUORESCENT) MAZDA F LAMPS AND BALLASTS

FLUORESCENT MAZDA F LAMPS



Fluorescent Mazda Lamp showing Pin Caps or Bases used on each end.

The new Westinghouse Fluorescent Mazda lamp answers the need for better white, daylight and colored lighting in stores, factories, offices, theatres, night clubs. The longer, slender tubular shape fits today's scheme of modern architecture, is convenient, easily concealed, highly efficient.

The new Mazda lamp contains no filament. Ultra-violet energy, acting on the chemical coating on the inside of the bulb, is converted into brilliant visible light. Several times more light is available from these lamps than from filament Mazda lamps. Following is scale of lumens per watt:

Color	Lumens Per Watt	Color	Lumens Per Watt
Gold	25–31*	Green	60–75
Red	3	White	35–47
Blue	21–26	Daylight	30–40
Pink	20–25		

*Depending on diameter and maximum length of tube.

ESSENTIAL DATA

	6 Watts T-5 9″ long Diam. ⅝″	14 Watts T-12 15″ long Diam. 1½″	15 Watts T-8 18″ long Diam. 1″	20 Watts T-12 24″ long Diam. 1½″	30 Watts T-8 36″ long Diam. 1″	40 Watts T-12 48″ long Diam. 1½″	100 Watts T-17 60″ long Diam. 2⅛″
Daylight	**$1.00**	**$1.05**	**$0.85**	**$1.10**	**$1.10**	**$1.60**	**$3.50**
3500° White	**1.00**	**1.05**	**.85**	**1.10**	**1.10**	**1.60**	**3.50**
Blue	-------	-------	**.95**	**1.20**	**1.20**	**1.70**	-------
Pink	-------	-------	**.95**	**1.20**	**1.20**	**1.70**	-------
Green	-------	-------	**.95**	**1.20**	**1.20**	**1.70**	-------
Gold	-------	-------	**1.05**	**1.30**	**1.30**	**1.80**	-------
Red	-------	-------	**1.05**	**1.30**	**1.30**	**1.80**	-------

FLUORESCENT TWO-LAMP BALLAST UNITS

For best performance, Fluorescent lamps should be operated only with high power-factor two-lamp equipment which reduces flicker and gives maximum use of wiring system. Ballasts are designed for A.C. only. All ballasts are intended for use in conjunction with FS socket-type starting switches.

Lamp Size In.	Lamp Watts	Approx. Line Volt.	Approx. Watts Lost	60 Cycle Cat. No.	60 Cycle List Price	50 Cycle Cat. No.	50 Cycle List Price	Dimen., In.* Lgth. Body	Dimen., In.* Lgth., Incl. Lugs	Wt. Lbs. Std.Pkg. of 20†
18	2-15	110-125	9	**1120835**	**$3.50**	**1121205**	**$5.75**	13 3/16	14 1/16	38
24	2-20	110-125	9	**1120836**	**3.50**	**1121206**	**5.75**	13 3/16	14 1/16	38
36	2-30	110-125	14.5	**1119944**	**4.25**	**1120756**	**5.75**	8 5/16	9 7/16	64
36	2-30	199-216	12	**1119968**	**4.25**	**1121219**	**5.75**	8 5/16	9 7/16	61
36	2-30	220-250	12.5	**1119969**	**4.25**	**1120757**	**5.75**	8 5/16	9 7/16	61
48	2-40	110-125	17.5	**1119945**	**4.50**	**1120758**	**6.00**	8 5/16	9 7/16	64
48	2-40	119-216	13.5	**1119966**	**4.50**	**1121220**	**6.00**	8 5/16	9 7/16	61
48	2-40	220-250	14.5	**1119967**	**4.50**	**1121759**	**6.00**	8 5/16	9 7/16	61
60	2-100	110-125	30	**1121819**	**11.50**	**1121828**	**15.00**	18⅝	19 3/16	68
60	2-100	199-216	30	**1121820**	**11.50**	**1121829**	**15.00**	18⅝	19 3/16	68
60	2-100	200-250	30	**1121821**	**11.50**	**1121830**	**15.00**	18⅝	19 3/16	68

*Width, 1⅞ in.; Height, 1 9/32 in. †Wt. Lbs., Std. Pkg., 50-cycle ballasts, 1 lb. more. Power-factor, 95–100.

FLUORESCENT SINGLE-LAMP BALLAST UNITS

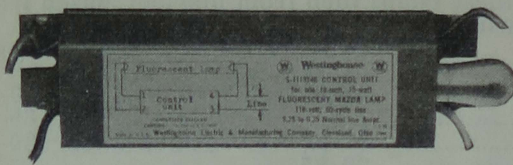
Made in two types—the low power-factor type having approximately 60% lagging power-factor, and the high power-factor type having a capacitor within the case connected across the line, resulting in a power-factor of 90% or better.

Single-Lamp Ballasts—Low Power-Factor

Lamp Size In.	Lamp Watts	Approx. Line Voltage	Power Factor %	60 Cycle Cat. No.	60 Cycle List Price	50 Cycle Cat. No.	50 Cycle List Price	Lenght Overall, Inches‡ 60 Cycle	Lenght Overall, Inches‡ 50 Cycle	Wt. Lbs. Std.Pkg. of 20†
6	4	110		**1122735**	**$1.15**	------------	-------	3⅜	4¼	23
9	6	110		**1122736**	**1.15**	------------	-------	3⅜	4¼	23
15	14	64 DC.		**1121769**	**1.50**	------------	-------	3⅜	4¾	23
18	15	110-125	55	**1119958**	**.60**	**1119979**	**$1.25**	4¼	4½	23
24	20	110-125	55	**1119959**	**.60**	**1119980**	**1.25**	4¼	4½	23
36	30	110-125	55	**1119960**	**2.00**	**1120688**	**3.00**	11	11	54
36	30	199-216	60	**1119961**	**1.25**	------------	------	7⅛	------	52
36	30	220-250	60	**1119962**	**1.25**	**1120754**	**2.00**	7⅛	7⅛	52
48	40	110-125	60	**1119963**	**2.25**	**1120689**	**3.25**	11	11	58
48	40	199-216	60	**1119964**	**1.50**	------------	------	7⅛	------	52
48	40	220-250	60	**1119965**	**1.50**	**1120755**	**2.25**	7⅛	7⅛	52
Single-Lamp Ballasts—High Power-Factor										
18	15	110-125	90–95	**1120880**	**2.50**	**1121197**	**4.75**	11	12½	35
24	20	110-125	90–95	**1120881**	**2.50**	**1121198**	**4.75**	11	12½	35
36	30	110-125	90–95	**1120882**	**3.75**	**1121199**	**5.75**	12½	14 11/16	64
36	30	199-216	90–95	**1120883**	**3.00**	**1121200**	**5.25**	11	12½	54
36	30	220-250	90–95	**1120884**	**3.00**	**1121201**	**5.25**	11	12½	54
48	40	110-125	90–95	**1119716**	**4.00**	**1121202**	**5.75**	12½	14 11/16	64
48	40	199-216	90–95	**1120885**	**3.25**	**1121203**	**5.25**	11	12½	54
48	40	220-250	90–95	**1120886**	**3.25**	**1121204**	**5.25**	11	12½	54
60	100	110-125	25	**1121813**	**8.00**	**1121825**	**11.00**	11¼	11 13/16	44
60	100	199-216	25	**1121814**	**8.00**	**1121826**	**11.00**	11¼	11 13/16	44
60	100	200-250	25	**1121815**	**8.00**	**1121827**	**11.00**	11¼	11 13/16	44

‡Width, 1⅞ in.; Height, 1 9/32 in. †Wt. Lbs., Std. Pkg., 50-cycle ballasts, 2 lbs. more.

WESTINGHOUSE
FLUORESCENT LAMP CONTROL UNITS
GLOW RELAY TYPE



Designed to regulate the operation of Fluorescent lamps. One control, of proper characteristics for the lamp selected, must be used with each lamp. The controls are designed for alternating current only.

These Glow Relay type units are for operating 15 and 20-watt lamps. Essential elements of the control unit are the starting switch, reactor or transformer and a small capacitor for eliminating radio interference. The glow relay used as a starting switch is conveniently mounted in a bayonet socket in the end of the case permitting easy replacement. The glow relay consumes no current while lamp is in operation and starts the lamp in approximately two seconds. Control units are designed for mounting in standard wireways.

Lamp Size In.	Lamp Watts	Dimen., In. Lgth.	Wdth.	Hght.	Cat. No.	List Price
18	15	7 7/16	1⅞	19/32	**1119148***	**$1.40**
24	20	7 7/16	1⅞	19/32	**1119149**	**1.40**

*Operates both 1-in. and 1½-in. diam. lamps. Line voltage, 60 cycle, 125; control units for 50-cycle operation furnished on request. Approx. power-factor, 55. Std. Pkg., 20; Wt., 32 lbs.

For Direct Current Operation

These control units are for 15 and 20-watt lamps only and require auxiliary resistance as indicated. Have starting switch, reactor or transformer and a small capacitor to minimize radio interference. The thermal-type starting switch is enclosed in the case proper.

Lamp Size Inches	Lamp Watts	Cat. No.	List Price	Approx. Line Current	External Ohms Resistance Required
18x1	15	**1119200**	**$1.60**	0.30	198
18x1½	15	**1119200**	**1.60**	0.31	190
24x1½	20	**1119200**	**1.60**	0.31	144

Dimensions: Length overall (including lugs) 7⅛-in.; Width, 1⅞-in.; Height, 1 9/32-in. Line voltage, 100-120. Std. Pkg., 20; Wt., 32 lbs.

WESTINGHOUSE
FLUORESCENT LAMP COMPENSATOR UNIT

Consists of a simple series of reactor in a gum-filled case. Its purpose is to increase the current and thus the temperature of the lamp cathodes in the capacitance branch during the starting period. Without this increased temperature, the arc is struck while the cathodes are not yet warm enough, causing a premature blackening and shorter life of the lamp. A separate starting compensator is not necessary in the 15 and 20-watt Two-Lamp Ballasts, since it is included as a component part.

STARTING COMPENSATORS

For 30 or 40-watt Two-Lamp Ballasts, 50 or 60 cycles.

Cat. No.	List Price	Std. Pkg.	Wt.Lbs. Std.Pkg.	Dimensions, In. Lgth.	Wdth.	Hght.
1119970	**$0.70**	20	23	4¼	1 27/32	1⅛

FLUORESCENT LAMP CAPACITORS
For Power-Factor Correction

The power-factor of an uncorrected Fluorescent lamp installation is between 50 and 60%. Improvement in the power-factor by the use of these capacitors means additional lamps may be installed on the same circuit. The capacitors are small and their cross-section permits installation in standard wireways. Furnished with mounting lugs and leads. Listed and approved by Underwriters. Capacitor should be applied as close to the load center as possible.

Line Voltage 60 Cycles*	Rating Micro-farads	Cat. No.	List Price	Std. Pkg. Wt.	Lgth.† Overall Inches
110-125	4.75	**1119484**	**$1.55**	12	5½
220-250	4.75	**1119484**	**1.55**	12	5½
110-125	17.50	**1119482**	**3.50**	33	14 11/16
220-250	17.50	**1119482**	**3.50**	33	14 11/16
110-125	28.0	**1119483**	**4.00**	33	14 11/16
110-125	6.50	**1120812**	**1.65**	12	5½
110-125	11.00	**1120813**	**2.30**	14	6 13/16

*May be used on 50 cycles. Std. pkg., 10.

†Width, 2¼-in.; Thickness, 1¼ inches.

APPLICATION DATA

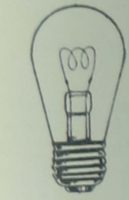
Lamp Watts	Line Voltage	Control or Ballast Used	No. Lamps that can be corrected‡	Cat. No. Capacitor
15	118	1119148	1	**1120812**
15	118	1119958	3	**1119482**
20	118	1119149	1	**1119484**
20	118	1119959	3	**1119482**
30	118	1119960	1	**1120813**
40	118	1119963	1	**1120813**
30	208	1119961	1	**1119484**
30	236	1119962	1	**1119484**
40	208	1119964	1	**1119484**
40	208	1119964	4	**1119482**
40	236	1119965	1	**1119484**
40	236	1119965	5	**1119482**

‡Corrected to 90% power-factor.

NALCO CARBON LAMPS

STRAIGHT SIDE TYPES

Fitted with Medium Screw Base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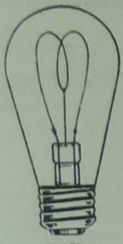
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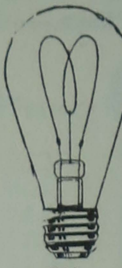
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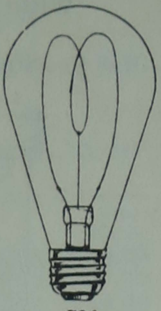

S24

Watts	Approx. Candle Power	Style Bulb	Diam. In.	Average Overall In.	Std. Pkg.	Price Each Clear	Price Each Frosted or Flame Tint
				110 to 130 Volts			
10	2	S-14	1¾	3½	250	**$0.20**	**$0.25**
20	4	S-14	1¾	3½	250	**.20**	**.25**
30	8	S-17	2⅛	4⅝	250	**.20**	**.25**
50	16	S-19	2⅜	5$\frac{3}{16}$	250	**.20**	**.25**
60	16	S-19	2⅜	5$\frac{3}{16}$	250	**.20**	**.25**
100	32	S-24	3	5⅝	125	**.30**	**.35**
120	32	S-24	3	5⅝	125	**.30**	**.35**
				220 to 250 Volts			
*20	4	S-14	1¾	3½	250	**.30**	**.35**
35	8	S-17	2⅛	4⅝	250	**.24**	**.29**
60	16	S-19	2⅜	5$\frac{3}{16}$	250	**.24**	**.29**
120	32	S-24	3	5⅝	125	**.35**	**.40**

*These lamps are not guaranteed nor recommended and are only sold at customers' own risk.

SIGHT LIGHT METER

VISCOR ALL PURPOSE—MODEL 703

READING NORMAL PRINT
READING FINE PRINT SEWING ETC.
SEVERE VISUAL WORK FOR LONG PERIODS
0
10
25
50
100
VISCO ALL PURPOSE
INADEQUATE FOR CRITICAL SEEING
SIGHT METER

The Sight Light Meter was the first light measuring instrument to classify foot candles according to the size and contrast of the common visual objects that the eyes are called upon to see.

By placing meter on working plane light readings are obtainable quickly, accurately and without confusion. This is due to the photronic cell and scale being on the same plane. This feature of design was protected and is exclusive only to the Sight Light Meter.

This instrument incorporates all of the original advantages plus the ability to measure light sources of all types, regardless of color characteristics. This All Purpose Sight Light Meter measures the light produced by mercury vapor, sodium, neon, fluorescent (all colors), incandescent and daylight without using complicated factors which at best are only rough estimates due to the many variables in the light source.

Range increased to 125 foot candles (permits a wide use without the need for multiplier disc). Photronic Cell and scale on same plane. (This assures correct positioning of instrument on working plane and reduces errors in making readings.

Price, Model **703,** Type 5 All Purpose Sight Light Meter ....each **$30.00**

CEFCO LAMP COLORING

WEATHERPROOF—For Outdoor Use

CEFCO
Weatherproof
LAMP COLORING
RED
DAY
A Guaranteed Product of
JAMES B. DAY & CO.
CHICAGO

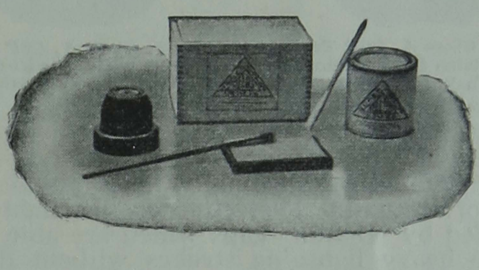
Genuine weatherproof lamp coloring for outdoor use.

No current is needed in applying. Just dip and allow three days for drying.

Six colors—Red, Blue, Green, Canary, Amber and White Opal. These colors can be blended into other shades if desired.

Cat. No.	Size Can Oz.	Price Each
237	7	**$1.50**
238	15	**2.50**
239	30	**4.50**

REED'S GLASS ETCHING INK



The outfit consists of one-half pint can etching ink, lead inking pad; camel hair brush; flexible form adapter and rubber stamp to make impression. With this outfit 10,000 to 12,000 pieces of glassware can be easily and permanently marked.

Standard Outfit with ½ pt. Can Ink	**$14.00**
Standard Outfit with 4 oz. Bottle Ink	**11.50**
Standard Outfit with 2 oz. Bottle Ink	**9.00**
Flexible Form Adapter (Only)	**2.00**
Special Rubber Die (Only)	**2.50**
Lead Pad (Only)	**.60**
Brush (Only)	**.40**

ETCHING INK

½ Pt. Special Lined Can	**$ 8.50**
8 Oz. Hard Rubber Bottle	**8.50**
4 Oz. Hard Rubber Bottle	**6.00**
2 Oz. Hard Rubber Bottle	**3.50**

COLORING FLUID AND FROSTING

CRESCENT

CRESCENT
COLORING
FLUID
BLUE

A high grade coloring fluid for incandescent lamps for indoor decoration. Made in all popular colors of amber, red, blue, pink, canary, violet, green, ruby, purple and frosted white.

Mfrs. No.	Size	Packed	Wt. Lbs. Packed	Price Each
2762	Gallon	Jug	22	**$14.00**
2763	Half-Gal.	Jug	18	**7.50**
2764	Quart	Bottle	10	**4.00**
2765	Pint	Bottle	6	**2.00**
2766	Half-Pint	Bottle	5	**1.00**

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

TYPE CSP COMPLETELY SELF-PROTECTING DISTRIBUTION TRANSFORMERS

Single Phase — 60 Cycle Service

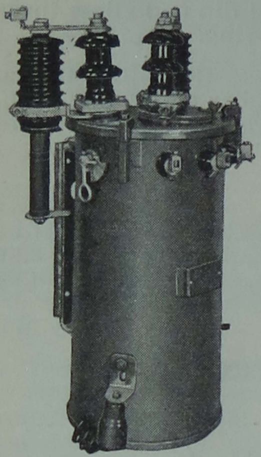


Fig. 1: Class A, CSP Transformer with Cover-Mounted, H.V. Bushings—From L.V. Side — 5 Kv-a., 6900 Volts

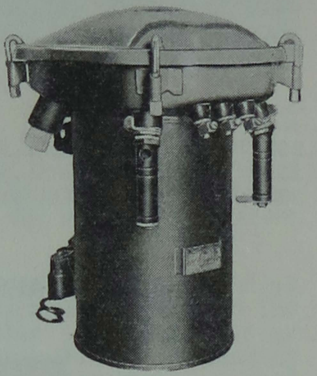


Fig. 2: Class A, CSP Transformer with Pocket Type H.-V. & L.-V. Bushings — Showing Breaker Handle and L.-V. Side — 5 Kv-a., 2400 Volts.

Complete self-protection without auxiliary devices of any kind. Protection against lightning is provided by "De-ion" gaps which are able to discharge heavy lightning strokes without damage. An internally mounted low voltage circuit breaker and high voltage protective links take the place of primary fuses and give protection against burnout from cumulative overload and short circuits.

The TR breaker, without opening the circuit, gives advance warning of excessive copper temperature by lighting an indicating lamp so that the condition may be corrected or a larger transformer installed at the convenience of the power company.

Transformer is available in either cover-mounted or pocket type bushings. Type CSP is available in sizes from 1½ to 50 kv-a., in standard voltage classes from 2400 to 7620 volts inclusive, single phase, 60 cycles for delta or star, and for 12000 and 13200 volts delta.

The transformer is universally applicable on any distribution feeder, either delta connected or 4-wire grounded neutral. It may be connected for single-phase or three-phase service, and is well adapted to urban, suburban, or rural locations.

Any desired grounding practice may be used. Where continuous water pipe grounds are available, the lead from the discharge gap may be connected to the secondary neutral; otherwise it may be grounded directly at the pole. Tanks may be grounded directly by omitting the discharge gap if desired. This practice appears to be gaining favor particularly in the 6900-volt class.

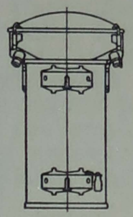
Fusing problems, often troublesome on long rural lines, are eliminated once and for all because no fused cutouts are used with this transformer.

The transformer secondaries are normally arranged for 3-wire service, but in sizes up to and including 15 kv-a., they may be connected internally to give full output on 2-wire service.

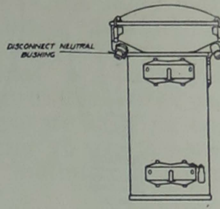
TYPE CSP COMPLETELY SELF-PROTECTING DISTRIBUTION TRANSFORMERS

With Pocket-Mounted Disconnect-Type High-Voltage Bushings

Single Phase — 60 Cycle Service



Class A



Class B-1

Class A

Two pocket-mounted disconnect-type high voltage bushings. List price includes: 2 H.V. "De-ion Gaps," L.V. Neutral Gap, 1 Tank Discharge Gap and Hanger Lugs for direct pole mounting. (See Accessories listing on a following page.) One FR breaker is supplied on 1½, 2½ and 3 Kv-a. ratings and one TR breaker is supplied on 5 to 25 Kv-a. ratings inclusive. Two TR breakers are supplied on 37½ and 50 Kv-a. ratings. Application—Single phase CSP transformers in voltage classes 7620 volts and below are suitable for connection to delta or star systems — 12000 and 13200 voltage classes are suitable for delta systems only.

Class B-1

One fully-insulated high voltage bushing and one neutral bushing, pocket mounted of the disconnect type. List price includes: 1 H.V. "De-ion Gap," 1 tank discharge gap and hanger lugs for direct pole mounting. (See Accessories listing on a following page.) One FR breaker is supplied on 1½, 2½ and 3 Kv-a. ratings and one TR breaker is supplied on 5 to 25 Kv-a. ratings inclusive. Two TR breakers are supplied on 37½ and 50Kv-a. ratings. Application—Single phase CSP transformers suitable for operation on three phase four wire system with neutral grounded at the substation or at the individual transformer.

Bold face type denotes nominal voltage and full-capacity taps.

High Voltage 2400/4160Y Low Voltage 120/240

		Class A		Class B-1	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each
1½†	4	**1U3–201**	**$79.00**	**1U3–202**	**$71.00**
3	6½	**2U3–201**	**90.00**	**2U3–202**	**82.00**
5	5¾	**3U3–201**	**137.00**	**3U3–202**	**129.00**
7½	5½	**4U3–201**	**166.00**	**4U3–202**	**158.00**
10	7½	**5U3–201**	**190.00**	**5U3–202**	**182.00**
15	8½	**6U3–201**	**229.00**	**6U3–202**	**221.00**
25	20	**7U3–201**	**310.00**	**7U3–202**	**302.00**
37½	35	**8U3–201**	**428.00**	**8U3–202**	**420.00**
50	40	**9U3–201**	**512.00**	**9U3–202**	**504.00**

High Voltage 2400/2280/2160/4160Y Low Voltage 120/240

1½	4	**1U4–201**	**79.00**	**1U4–202**	**71.00**
3	6½	**2U4–201**	**93.00**	**2U4–202**	**85.00**
5	5¾	**3U4–201**	**142.00**	**3U4–202**	**134.00**
7½	5½	**4U4–201**	**172.00**	**4U4–202**	**164.00**
10	7½	**5U4–201**	**196.00**	**5U4–202**	**188.00**
15	8½	**6U4–201**	**237.00**	**6U4–202**	**229.00**
25	20	**7U4–201**	**320.00**	**7U4–202**	**312.00**
37½	35	**8U4–201**	**428.00**	**8U4–202**	**420.00**
50	40	**9U4–201**	**512.00**	**9U4–202**	**504.00**

*Weight gallon oil, 7½ pounds.

†If low voltage 120 only is required, deduct **$3.00** list price.

For ordering information see suggestions at end of transformer section.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

TYPE CSP COMPLETELY SELF-PROTECTING DISTRIBUTION TRANSFORMERS

With Pocket-Mounted Disconnect-Type High-Voltage Bushings

Single Phase — 60 Cycle Service

Bold face type denotes nominal voltage and full-capacity taps.

High Voltage **2400/4160Y/4800/8320Y** Low Voltage **120/240**

		Class A		Class B-1	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each
1½†	6½	**1U5–201**	**$104.00**	**1U5–202**	**$88.00**
3	6½	**2U5–201**	**113.00**	**2U5–202**	**97.00**
5	5¾	**3U5–201**	**161.00**	**3U5–202**	**145.00**
7½	7	**4U5–201**	**197.00**	**4U5–202**	**181.00**
10	8½	**5U5–201**	**222.00**	**5U5–202**	**206.00**
15	12¼	**6U5–201**	**264.00**	**6U5–202**	**248.00**
25	19	**7U5–201**	**358.00**	**7U5–202**	**342.00**
37½	32	**8U5–201**	**479.00**	**8U5–202**	**463.00**
50	39	**9U5–201**	**568.00**	**9U5–202**	**552.00**

High Voltage **7200/6875/6545/6220/12470Y** Low Voltage **120/240**

1½	6½	**1U6–201**	**113.00**	**1U6–202**	**95.00**
3	6	**2U6–201**	**127.00**	**2U6–202**	**109.00**
5	5¾	**3U6–201**	**183.00**	**3U6–202**	**165.00**
7½	11	**4U6–201**	**227.00**	**4U6–202**	**209.00**
10	14½	**5U6–201**	**256.00**	**5U6–202**	**238.00**
15	15½	**6U6–201**	**307.00**	**6U6–202**	**289.00**
25	23	**7U6–201**	**407.00**	**7U6–202**	**389.00**
37½	33	**8U6–201**	**536.00**	**8U6–202**	**518.00**
50	42	**9U6–201**	**633.00**	**9U6–202**	**615.00**

High Voltage **7620/7240/6860/13200Y** Low Voltage **120/240**

1½	6½	**1U7–201**	**113.00**	**1U7–202**	**95.00**
3	6	**2U7–201**	**127.00**	**2U7–202**	**109.00**
5	8	**3U7–201**	**183.00**	**3U7–202**	**165.00**
7½	9½	**4U7–201**	**227.00**	**4U7–202**	**209.00**
10	15	**5U7–201**	**256.00**	**5U7–202**	**238.00**
15	16	**6U7–201**	**307.00**	**6U7–202**	**289.00**
25	23	**7U7–201**	**407.00**	**7U7–202**	**389.00**
37½	34	**8U7–201**	**536.00**	**8U7–202**	**518.00**
50	42	**9U7–201**	**633.00**	**9U7–202**	**615.00**

High Voltage **12000/11400/10800** Low Voltage **120/240**

3‡	----	------------	---------	------------	---------
5	15	**3U8–201**	**227.00**	------------	---------
10	15	**5U8–201**	**302.00**	------------	---------
15	16	**6N8–201**	**354.00**	------------	---------
25	32	**7U8–201**	**457.00**	------------	---------
37½	35	**8U8–201**	**587.00**	------------	---------
50	44	**9U8–201**	**686.00**	------------	---------

High Voltage **13200/12540/11880** Low Voltage **120/240**

3‡	----	------------	---------	------------	---------
5	15	**3U9–201**	**244.00**	------------	---------
10	15	**5U9–201**	**323.00**	------------	---------
15	18	**6U9–201**	**376.00**	------------	---------
25	31	**7U9–201**	**481.00**	------------	---------
37½	34	**8U9–201**	**612.00**	------------	---------
50	44	**9U9–201**	**713.00**	------------	---------

*Weight gallon oil, 7½ pounds.

‡Prices on request.

†If low voltage 120 only is required, deduct **$5.00** list price.

Direct Pole and Cross-Arm Mounting Arrangements

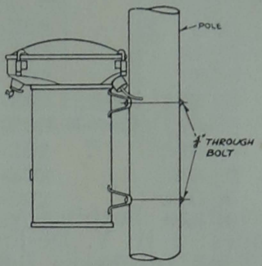


Fig. 1 — Round Tank — Direct Pole Mounting

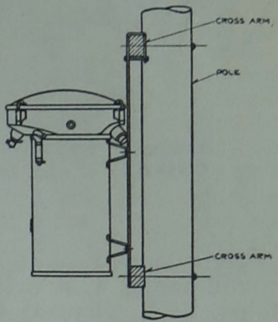


Fig. 2 — Round Tank — Cross-Arm Mounting with Lower Cross-Arm

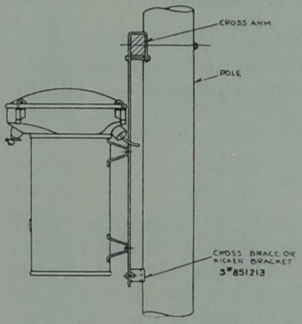


Fig. 3 — Round Tank — Cross-Arm Mounting with Kicker Bracket

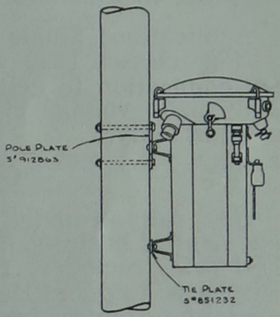


Fig. 4 — Octagonal Tank — Direct Pole Mounting with Tie Plate

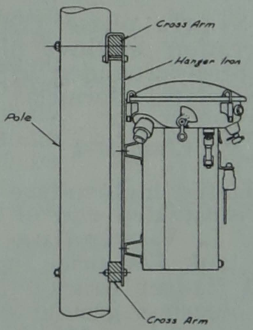


Fig. 5 — Octagonal Tank — Cross-Arm Mounting with Lower Cross-Arm

Note: Figs. 1, 2 and 3 apply for following standard ratings:

15 Kv-a. and below—2400 and 4800-volt classes.

10 Kv-a. and below—7200, 12000 and 13200-volt classes.

Fig. 4 applies for the following standard ratings:

25 Kv-a.—2400 and 4800-volt classes.

15 and 25 Kv-a.—7200-volt class.

15 Kv-a.—12000 and 13200-volt classes.

Fig. 5 applies for the following standard ratings:

25 to 50 Kv-a. inclusive—2400 and 4800-volt classes.

15 to 50 Kv-a. inclusive—7200, 1200 and 13200-volt classes.

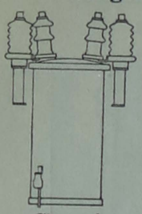
For ordering information, see suggestions at end of transformer section.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

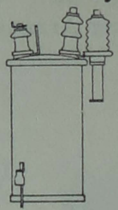
TYPE CSP COMPLETELY SELF-PROTECTING DISTRIBUTION TRANSFORMERS

With Cover-Mounted High-Voltage Bushings

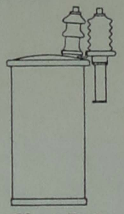
Single Phase — 60-Cycle Service



Class A



Class B-1



Class B-2

Class A

Two cover-mounted high-voltage bushings — round tanks. List price includes: 2 H. V. De-ion Gaps, L. V. Neutral Gap, 1 Tank Discharge Gap and Hanger Bracket for direct pole mounting. One FR Breaker is supplied on 1½, 2½, and 3 Kv-a. ratings and one TR breaker is supplied on 5 to 25 Kv-a. ratings inclusive. Two TR breakers are supplied on 37½ and 50 Kv-a. ratings.

Application: Single phase CSP transformers in voltage classes 7620 volts and below are suitable for connection to delta or star systems — 12000 and 13200 voltage classes are suitable for delta systems only.

Class B-1

One fully-insulated high-voltage bushing and one neutral bushing, cover mounted—round tanks. List price includes: 1 H. V. De-ion Gap, 1 Tank Discharge Gap and Hanger Bracket for direct pole mounting. One FR breaker is supplied on 1½, 2½, and 3 Kv-a. ratings and one TR breaker is supplied on 5 to 25 Kv-a. ratings inclusive. Two TR breakers are supplied on 37½ and 50 Kv-a. ratings.

Application: Single phase CSP transformers suitable for operation on three phase four wire system with neutral grounded at the substation or at the individual transformer.

Class B-2

One cover-mounted high-voltage bushing — round tanks. Uninsulated end of H. V. winding and midpoint of L. V. winding permanently grounded to the tank. List price includes: 1 H. V. De-ion Gap and Hanger Bracket for direct pole mounting and solderless ground connector. One FR breaker is supplied on 1½, 2½, and 3 Kv-a. ratings and one TR breaker is supplied on 5 to 25 Kv-a. ratings inclusive. Two TR breakers are supplied on 37½ and 50 Kv-a. ratings.

Application: Single phase CSP transformers suitable for operation on three phase four wire system with neutral grounded at each transformer.

General Information

Voltage classes correspond to N.E.M.A. Standards. L. V. Bushings are stud type. Transformers through 25 Kv-a., 120/240 volts, and through 50 Kv-a., 240/480 volts, have three terminals brought out and may be reconnected internally for full capacity two-wire service. Ratings 37½ and 50 Kv-a., 120/240 volts, have four terminals brought out of the tank. They may be connected externally for three-wire or full capacity two-wire service.

H. V. Bushings are stud type. Solderless Connectors are provided on all bushings.

Direct Pole and Cross-Arm Mounting Arrangements

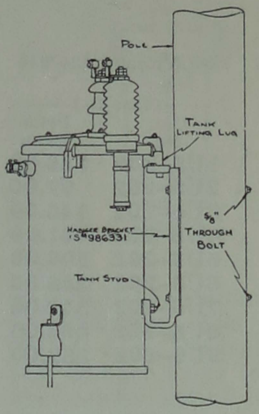


Fig. 1
Small Rating With Direct Pole Mounting Bracket

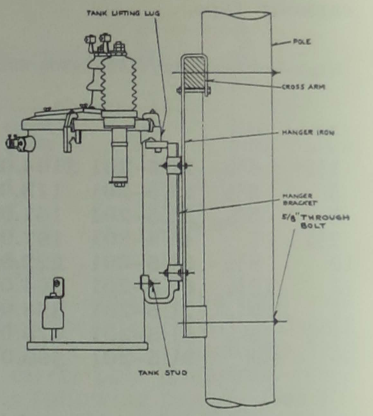


Fig. 2
Small Rating With Cross-Arm Hanger Irons

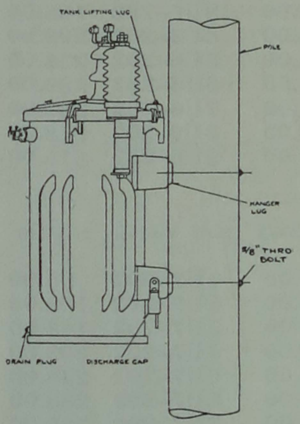


Fig. 3
Large Rating With Direct Pole Mounting Lugs

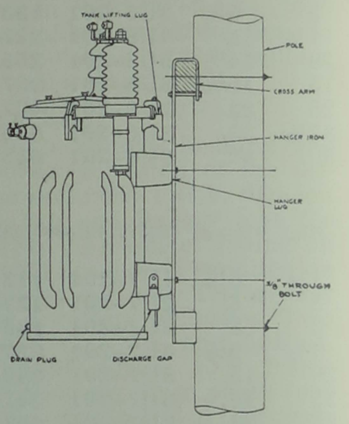


Fig. 4
Large Rating With Cross-Arm Hanger Iron

Hanger Brackets for three direct pole mounting positions are supplied at no extra cost on the following ratings:

Voltage Class	S#986331 Kv-a. Rating
4800 and less	1½ to 15
7200 to 13200, incl.	1½ to 10

Higher Kv-a. ratings than these have hanger lugs for direct pole mounting, welded directly to the tank as shown in Fig. 3. These afford one mounting position only. Ratings using bracket Cat. No. 986331 are equipped with three sets of hanger lugs spaced 120 degrees apart around the periphery of the tank. This permits the mounting of the tank in either of three positions, placing the low voltage bushings on the right, on the left or directly opposite the pole, giving the most economical arrangement of low voltage connections for each installation.

Cross Arm Hangers for mounting on two cross arms may be supplied for the following ratings:

Voltage Class	S#1029316 KV-a. Rating	S#1026826 Kv-a. Rating
4800 and less	1½ to 15	25 to 50
7200 to 13200, Incl.	1½ to 10	15 to 50

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

TYPE CSP COMPLETELY SELF-PROTECTING DISTRIBUTION TRANSFORMERS

With Cover-Mounted High-Voltage Bushings

Single Phase — 60-Cycle Service

Bold Face Type Denotes Nominal Voltage and Full Capacity Taps

High Voltage **2400/4160Y** Low Voltage **120/240**

		Class A		Class B-1		Class B-2	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1½†	4	1C3-201	$ 83.00	1C3-202	$ 75.00	1C3-203	$ 69.00
3	6	2C3-201	94.00	2C3-202	86.00	2C3-203	80.00
5	6½	3C3-201	141.00	3C3-202	133.00	3C3-203	127.00
7½	6	4C3-201	170.00	4C3-202	162.00	4C3-203	156.00
10	7½	5C3-201	194.00	5C3-202	186.00	5C3-203	180.00
15	8	6C3-201	233.00	6C3-202	225.00	6C3-203	219.00
25	24	7C3-201	314.00	7C3-202	306.00	7C3-203	300.00
37½	27	8C3-201	428.00	8C3-202	420.00	8C3-203	415.00
50	46	9C3-201	512.00	9C3-202	504.00	9C3-203	499.00

High Voltage **2400/2280/2160/4160 Y** Low Voltage **120/240**

		Class A		Class B-1		Class B-2	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1½	4	1C4-201	83.00	1C4-202	75.00	1C4-203	69.00
3	6	2C4-201	97.00	2C4-202	89.00	2C4-203	83.00
5	6½	3C4-201	146.00	3C4-202	138.00	3C4-203	132.00
7½	6	4C4-201	176.00	4C4-202	168.00	4C4-203	162.00
10	7½	5C4-201	200.00	5C4-202	192.00	5C4-203	186.00
15	8	6C4-201	241.00	6C4-202	233.00	6C4-203	227.00
25	24	7C4-201	324.00	7C4-202	316.00	7C4-203	310.00
37½	27	8C4-201	428.00	8C4-202	420.00	8C4-203	415.00
50	46	9C4-201	512.00	9C4-202	504.00	9C4-203	499.00

High Voltage **2400/4160 Y/4800/8320 Y** Low Voltage **120/240**

		Class A		Class B-1		Class B-2	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1½†	4	1C5-201	108.00	1C5-202	92.00	1C5-203	86.00
3	6	2C5-201	117.00	2C5-202	101.00	2C5-203	95.00
5	6½	3C5-201	165.00	3C5-202	149.00	3C5-203	143.00
7½	7	4C5-201	201.00	4C5-202	185.00	4C5-203	179.00
10	8½	5C5-201	226.00	5C5-202	210.00	5C5-203	204.00
15	12	6C5-201	268.00	6C5-202	252.00	6C5-203	246.00
25	22	7C5-201	362.00	7C5-202	346.00	7C5-203	340.00
37½	26	8C5-201	479.00	8C5-202	463.00	8C5-203	458.00
50	46	9C5-201	568.00	9C5-202	552.00	9C5-203	547.00

High Voltage **7200/6875/6545/6220/12470 Y** Low Voltage **120/240**

		Class A		Class B-1		Class B-2	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1½	4	1C6-201	113.00	1C6-202	95.00	1C6-203	89.00
3	6½	2C6-201	127.00	2C6-202	109.00	2C6-203	103.00
5	6½	3C6-201	183.00	3C6-202	165.00	3C6-203	159.00
7½	10½	4C6-201	227.00	4C6-202	209.00	4C6-203	203.00
10	16	5C6-201	256.00	5C6-202	238.00	5C6-203	232.00
15	22	6C6-201	307.00	6C6-202	289.00	6C6-203	283.00
25	41	7C6-201	407.00	7C6-202	389.00	7C6-203	383.00
37½	45	8C6-201	536.00	8C6-202	518.00	8C6-203	512.00
50	44	9C6-201	633.00	9C6-202	615.00	9C6-203	609.00

High Voltage **7620/7240/6860/13200 Y** Low Voltage **120/240**

		Class A		Class B-1		Class B-2	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1½	4	1C7-201	113.00	1C7-202	95.00	1C7-203	89.00
3	6½	2C7-201	127.00	2C7-202	109.00	2C7-203	103.00
5	6½	3C7-201	183.00	3C7-202	165.00	3C7-203	159.00
7½	10½	4C7-201	227.00	4C7-202	209.00	4C7-203	203.00
10	16	5C7-201	256.00	5C7-202	238.00	5C7-203	232.00
15	22	6C7-201	307.00	6C7-202	289.00	6C7-203	283.00
25	41	7C7-201	407.00	7C7-202	389.00	7C7-203	383.00
37½	45	8C7-201	536.00	8C7-202	518.00	8C7-203	512.00
50	44	9C7-201	633.00	9C7-202	615.00	9C7-203	609.00

High Voltage **12000/11400/10800**
Low Voltage **120/240**

		Class A	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each
3‡	----	------------	------------
5	17	3C8-201	$227.00
10	16	5C8-201	302.00
15	22	6C8-201	354.00
25	41	7C8-201	457.00
37½	46	8C8-201	587.00
50	44	9C8-201	686.00

High Voltage **13200/12540/11880**
Low Voltage **120/240**

		Class A	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each
3‡	----	------------	------------
5	17	3C9-201	$244.00
10	16	5C9-201	323.00
15	22	6C9-201	376.00
25	41	7C9-201	481.00
37½	45	8C9-201	612.00
50	44	9C9-201	713.00

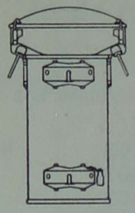
*Weight gallon oil, 7½ pounds. ‡Prices on request.
†If low voltage 120 only is required deduct **$5.00** list price.
For ordering information, see suggestions at end of transformer section.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

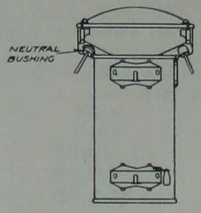
TYPE SP SURGE PROTECTED DISTRIBUTION TRANSFORMERS

With Pocket-Mounted High-Voltage Bushings

Single Phase — 60 Cycle Service



Class A



Class B-1

Class A

Two pocket mounted high voltage bushings. List price includes: 2 H. V. de-ion Gaps, L. V. Neutral Gap, 1 Tank Discharge Gap and Hanger lugs for direct pole mounting. (See a following page). Application — Single phase SP transformers in voltage classes 7620 volts and below are suitable for connection to Delta or Star systems — 12000 and 13200 voltage classes are suitable for Delta systems only.

Class B-1

One fully insulated high voltage bushing and one neutral bushing, pocket mounted. List price includes: 1 H. V. De-ion Gap and 1 Tank Discharge Gap, and Hanger lugs for direct pole mounting. (See a following page.) Application — Single phase SP transformers suitable for operation on three phase four wire system with neutral grounded at the substation or at the individual transformer.

Direct pole and cross-arm mounting arrangements for Type SP transformers are the same as illustrated on a preceding page for CSP distribution transformers.

Bold face type denotes nominal voltage and full capacity taps.

High Voltage **2400/4160 Y** Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Class A Cat. No.	Class A Price Each	Class B-1 Cat. No.	Class B-1 Price Each
1½†	4	1U3-101	$ 69.00	1U3-102	$ 61.00
3	6½	2U3-101	80.00	2U3-102	72.00
5	5¾	3U3-101	117.00	3U3-102	109.00
7½	5½	4U3-101	146.00	4U3-102	138.00
10	7½	5U3-101	170.00	5U3-102	162.00
15	8½	6U3-101	209.00	6U3-102	201.00
25	20	7U3-101	290.00	7U3-102	282.00
37½	35	8U3-101	388.00	8U3-102	380.00
50	40	9U3-101	472.00	9U3-102	464.00

High Voltage **2400**/2280/2160/**4160 Y**
Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Class A Cat. No.	Class A Price Each	Class B-1 Cat. No.	Class B-1 Price Each
1½	4	1U4-101	69.00	1U4-102	61.00
3	6½	2U4-101	83.00	2U4-102	75.00
5	5¾	3U4-101	122.00	3U4-102	114.00
7½	5½	4U4-101	152.00	4U4-102	144.00
10	7½	5U4-101	176.00	5U4-102	168.00
15	8½	6U4-101	217.00	6U4-102	209.00
25	20	7U4-101	300.00	7U4-102	292.00
37½	35	8U4-101	388.00	8U4-102	380.00
50	40	9U4-101	472.00	9U4-102	464.00
75	41	10U4-101	623.00	10U4-102	615.00
100	44	11U4-101	771.00	11U4-102	763.00

*Weight gallon oil, 7½ pounds.

†If low voltage 120 only is required, deduct **$3.00** list price.

Bold face type denotes nominal voltage and full capacity taps.

High Voltage **2400/4160 Y/4800/8320 Y**
Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Class A Cat. No.	Class A Price Each	Class B-1 Cat. No.	Class B-1 Price Each
1½†	6½	1U5-101	$ 94.00	1U5-102	$ 78.00
3	6½	2U5-101	103.00	2U5-102	87.00
5	5¾	3U5-101	141.00	3U5-102	125.00
7½	7	4U5-101	177.00	4U5-102	161.00
10	8½	5U5-101	202.00	5U5-102	186.00
15	12¼	6U5-101	244.00	6U5-102	228.00
25	19	7U5-101	338.00	7U5-102	322.00
37½	32	8U5-101	439.00	8U5-102	423.00
50	39	9U5-101	528.00	9U5-102	512.00
75	41	10U5-101	690.00	10U5-102	674.00
100	44	11U5-101	841.00	11U5-102	825.00

High Voltage **7200**/6875/6545/6220/**12470 Y**
Low Voltage 120/240

Cap. Kv-a.	Gal. Oil*	Class A Cat. No.	Class A Price Each	Class B-1 Cat. No.	Class B-1 Price Each
1½	6½	1U6-101	103.00	1U6-102	85.00
3	6	2U6-101	117.00	2U6-102	99.00
5	5¾	3U6-101	163.00	3U6-102	145.00
7½	11	4U6-101	207.00	4U6-102	189.00
10	14½	5U6-101	236.00	5U6-102	218.00
15	15½	6U6-101	287.00	6U6-102	269.00
25	23	7U6-101	387.00	7U6-102	369.00
37½	33	8U6-101	496.00	8U6-102	478.00
50	42	9U6-101	593.00	9U6-102	575.00
75	46	10U6-101	772.00	10U6-102	754.00
100	55	11U6-101	915.00	11U6-102	897.00

High Voltage **7620**/7240/6860/**13200 Y**
Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Class A Cat. No.	Class A Price Each	Class B-1 Cat. No.	Class B-1 Price Each
1½	6½	1U7-101	103.00	1U7-102	85.00
3	6	2U7-101	117.00	2U7-102	99.00
5	8	3U7-101	163.00	3U7-102	145.00
7½	9½	4U7-101	207.00	4U7-102	189.00
10	15	5U7-101	236.00	5U7-102	218.00
15	16	6U7-101	287.00	6U7-102	269.00
25	23	7U7-101	387.00	7U7-102	369.00
37½	34	8U7-101	496.00	8U7-102	478.00
50	42	9U7-101	593.00	9U7-102	575.00
75	46	10U7-101	772.00	10U7-102	754.00
100	55	11U7-101	915.00	11U7-102	897.00

High Voltage **12000**/11400/10800
Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Class A Cat. No.	Class A Price Each	Class B-1 Cat. No.	Class B-1 Price Each
3‡	....	....	....	....	....
5	15	3U8-101	207.00	....	....
10	15	5U8-101	282.00	....	....
15	16	6U8-101	334.00	....	....
25	32	7U8-101	437.00	....	....
37½	35	8U8-101	547.00	....	....
50	44	9U8-101	646.00	....	....
75	50	10U8-101	825.00	....	....
100	60	11U8-101	968.00	....	....

High Voltage **13200**/12540/11880
Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Class A Cat. No.	Class A Price Each	Class B-1 Cat. No.	Class B-1 Price Each
3‡	....	....	....	....	....
5	15	3U9-101	224.00	....	....
10	15	5U9-101	303.00	....	....
15	18	6U9-101	356.00	....	....
25	31	7U9-101	461.00	....	....
37½	34	8U9-101	572.00	....	....
50	44	9U9-101	673.00	....	....
75	50	10U9-101	853.00	....	....
100	60	11U9-101	997.00	....	....

‡Prices on request.

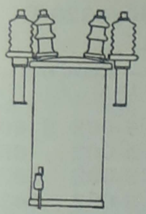
†If low voltage 120 only is required, deduct **$3.00** list price.

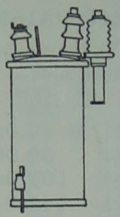
For ordering information, see suggestions at end of transformer section.

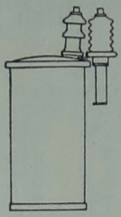
WESTINGHOUSE DISTRIBUTION TRANSFORMERS

TYPE SP SURGE-PROTECTED DISTRIBUTION TRANSFORMERS With Cover-Mounted High-Voltage Bushings

Single Phase — 60 Cycle Service


Class A


Class B-1


Class B-2

Class A

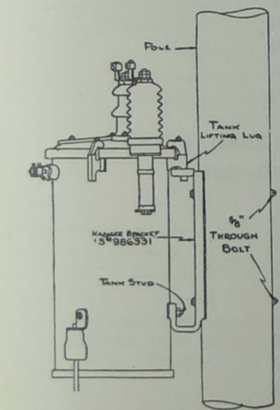
Two cover mounted high-voltage bushings—round tanks. List price includes: 2 H. V. De-ion Gaps, L.V. Neutral Gap, 1 Tank Discharge Gap and Hanger Bracket for direct pole mounting. Application: Single-phase SP transformers in voltage classes 7620 volts and below are suitable for connection to Delta or Star systems — 12000 and 13200 voltage classes are suitable for Delta systems only.

Class B-1

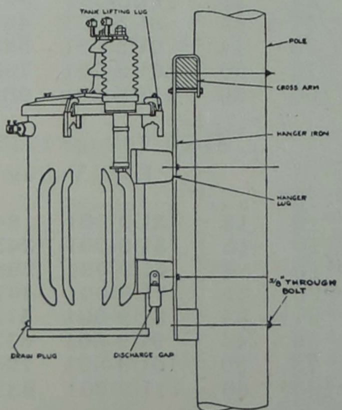
One fully insulated high voltage bushing and one neutral bushing, cover mounted—round tanks. List price includes: 1 H.V. De-ion Gap and 1 Tank Discharge Gap, and Hanger Bracket for direct pole mounting. Application: Single-phase SP transformers suitable for operation on three-phase four-wire system with neutral grounded at the substation or at the individual transformer.

Class B-2

One cover mounted high-voltage bushing—round tanks. Common neutral solidly grounded to tank. Uninsulated end of H.V. winding and mid-point of L.V. winding permanently grounded to the tank. List price includes: 1 H.V. De-ion Gap and Hanger Bracket for direct pole mounting, and solderless ground connector. Application: Single-phase SP transformers suitable for operation on three-phase four-wire system with neutral grounded at each transformer.



Small Rating With Direct Pole Mounting Bracket



Large Rating With Cross-Arm Hanger Iron

Bold face type denotes nominal voltage and full capacity taps.

		Class A		Class B-1		Class B-2	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
High Voltage **2400**/4100 Y						Low Voltage	**120/240**
1½†	4	1C3-101	$ 73.00	1C3-102	$ 65.00	1C3-103	$ 59.00
3	6	2C3-101	84.00	2C3-102	76.00	2C3-103	70.00
5	6½	3C3-101	121.00	3C3-102	113.00	3C3-103	107.00
7½	6	4C3-101	150.00	4C3-102	142.00	4C3-103	136.00
10	7½	5C3-101	174.00	5C3-102	166.00	5C3-103	160.00
15	8	6C3-101	213.00	6C3-102	205.00	6C3-103	199.00
25	24	7C3-101	294.00	7C3-102	286.00	7C3-103	280.00
37½	27	8C3-101	388.00	8C3-102	380.00	8C3-103	375.00
50	46	9C3-101	472.00	9C3-102	464.00	9C3-103	459.00
High Voltage **2400/2280/2160/4160 Y**						Low Voltage	**120/240**
1½	4	1C4-101	$ 73.00	1C4-102	$ 65.00	1C4-103	$ 59.00
3	6	2C4-101	87.00	2C4-102	79.00	2C4-103	73.00
5	6½	3C4-101	126.00	3C4-102	118.00	3C4-103	112.00
7½	6	4C4-101	156.00	4C4-102	148.00	4C4-103	142.00
10	7½	5C4-101	180.00	5C4-102	172.00	5C4-103	166.00
15	8	6C4-101	221.00	6C4-102	213.00	6C4-103	207.00
25	24	7C4-101	304.00	7C4-102	296.00	7C4-103	290.00
37½	27	8C4-101	388.00	8C4-102	380.00	8C4-103	375.00
50	46	9C4-101	472.00	9C4-102	464.00	9C4-103	459.00
75	....	10C4-101	623.00	10C4-102	615.00	10C4-103	610.00
100	...	11C4-101	771.00	11C4-102	763.00	11C4-103	758.00
High Voltage **2400/4160 Y/4180/8320 Y**						Low Voltage	**120/240**
1½	4	1C5-101	98.00	1C5-102	82.00	1C5-103	76.00
3	6	2C5-101	107.00	2C5-102	91.00	2C5-103	85.00
5	6½	3C5-101	145.00	3C5-102	129.00	3C5-103	123.00
7½	7	4C5-101	181.00	4C5-102	165.00	4C5-103	159.00
10	8½	5C5-101	206.00	5C5-102	190.00	5C5-103	184.00
15	12	6C5-101	248.00	6C5-102	232.00	6C5-103	226.00
25	22	7C5-101	342.00	7C5-102	326.00	7C5-103	320.00
37½	26	8C5-101	439.00	8C5-102	423.00	8C5-103	418.00
50	46	9C5-101	528.00	9C5-102	512.00	9C5-103	507.00
75	....	10C5-101	690.00	10C5-102	674.00	10C5-103	669.00
100	....	11C5-101	841.00	11C5-102	825.00	11C5-103	820.00
High Voltage 7200/6875/6545/6220/12470 Y Low Voltage **120/240**							
1½	4	1C6-101	103.00	1C6-102	85.00	1C6-103	79.00
3	6½	2C6-101	117.00	2C6-102	99.99	2C6-103	93.00
5	6½	3C6-101	163.00	3C6-102	145.00	3C6-103	139.00
7½	10½	4C6-101	207.00	4C6-102	189.00	4C6-103	183.00
10	16	5C6-101	236.00	5C6-102	218.00	5C6-103	212.00
15	22	6C6-101	287.00	6C6-102	269.00	6C6-103	263.00
25	41	7C6-101	387.00	7C6-102	369.00	7C6-103	363.00
37½	45	8C6-101	496.00	8C6-102	478.00	8C6-103	472.00
50	44	9C6-101	593.00	9C6-102	575.00	9C6-103	569.00
75	....	10C6-101	772.00	10C6-102	754.00	10C6-103	748.00
100	....	11C6-101	915.00	11C6-102	897.00	11C6-103	891.00
High Voltage **7620**/7240/6860/13200 Y						Low Voltage	**120/240**
1½	4	1C7-101	103.00	1C7-102	85.00	1C7-103	79.00
3	6½	2C7-101	117.00	2C7-102	99.00	2C7-103	93.00
5	6½	3C7-101	163.00	3C7-102	145.00	3C7-103	139.00
7½	10½	4C7-101	207.00	4C7-102	189.00	4C7-103	183.00
10	16	5C7-101	236.00	5C7-102	218.00	5C7-103	212.00
15	22	6C7-101	287.00	6C7-102	269.00	6C7-103	263.00
25	41	7C7-101	387.00	7C7-102	369.00	7C7-103	363.00
37½	45	8C7-101	496.00	8C7-102	478.00	8C7-103	472.00
50	44	9C7-101	593.00	9C7-102	575.00	9C7-103	569.00
75	....	10C7-101	772.00	10C7-102	754.00	10C7-103	748.00
100	....	11C7-101	915.00	11C7-102	897.00	11C7-103	891.00

High Volt. **12000/11400/10800**
Low Voltage **120/240**

		Class A	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each
3‡	....	....	....
5	17	3C8-101	$207.00
10	16	5C8-101	282.00
15	22	6C8-101	334.00
25	41	7C8-101	437.00
37½	45	8C8-101	547.00
50	44	9C8-101	646.00
75	....	10C8-101	825.00
100	....	11C8-101	968.00

High Volt. **13200/12540/11880**
Low Voltage **120/240**

		Class A	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each
3‡	....	....	....
5	17	3C9-101	$224.00
10	16	5C9-101	303.00
15	22	6C9-101	356.00
25	41	7C9-101	461.00
37½	45	8C9-101	572.00
50	44	9C9-101	673.00
75	....	10C9-101	853.00
100	....	11C9-101	997.00

*Weight gallon oil 7½ pounds.

†If low voltage 120 only is required deduct $3.00 list price.

‡Prices on request.

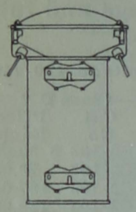
For ordering information, see suggestions at end of transformer section.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

TYPE S CONVENTIONAL DISTRIBUTION TRANSFORMERS

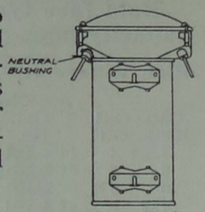
With Pocket-Mounted High-Voltage Bushings

Single-Phase, 60-Cycle Service



Class A

Class A: Two pocket-mounted high-voltage bushings. Price includes hanger bracket for direct pole mounting and standard accessories.



Class B-1

Class B-1: One fully insulated high voltage bushing and one neutral bushing, pocket mounted. Price includes hanger bracket for direct pole mounting and standard accessories.

For mounting arrangements, see illustrations on a preceding page.

Bold face type denotes nominal voltage and full capacity taps.

High Voltage **480/456/432** Low Voltage **120/240**

		Class A		Class B-1	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each
1½	....	1U1-001	$ 51.00	....	....
3	....	2U1-001	65.00	....	....
5	....	3U1-001	104.00	....	....
7½	....	4U1-001	134.00	....	....
10	....	5U1-001	158.00	....	....
15	....	6U1-001	199.00	....	....
25	....	7U1-001	282.00	....	....
37½	....	8U1-001	370.00	....	....
50	....	9U1-001	454.00	....	....
75	....	10U1-001	605.00	....	....
100	....	11U1-001	753.00	....	....

High Voltage **600/570/540** Low Voltage **120/240**

1½	....	1U2-001	51.00	....	....
3	....	2U2-001	65.00	....	....
5	....	3U2-001	104.00	....	....
7½	....	4U2-001	134.00	....	....
10	....	5U2-001	158.00	....	....
15	....	6U2-001	199.00	....	....
25	....	7U2-001	282.00	....	....
37½	....	8U2-001	370.00	....	....
50	....	9U2-001	454.00	....	....
75	....	10U2-001	605.00	....	....
100	....	11U2-001	753.00	....	....

High Voltage **2400/4160 Y** Low Voltage **120/240**

1½†	4	1U3-001	51.00	1U3-002	$ 51.00
3	6½	2U3-001	62.00	2U3-002	62.00
5	5¾	3U3-001	99.00	3U3-002	99.00
7½	5½	4U3-001	128.00	4U3-002	128.00
10	7½	5U3-001	152.00	5U3-002	152.00
15	8½	6U3-001	191.00	6U3-002	191.00
25	20	7U3-001	272.00	7U3-002	272.00
37½	35	8U3-001	370.00	8U3-002	370.00
50	40	9U3-001	454.00	9U3-002	454.00
75	41	10U3-001	605.00	10U3-002	605.00
100	44	11U3-001	753.00	11U3-002	753.00

High Voltage **2400/2280/2160/4160 Y**
Low Voltage **120/240**

1½	4	1U4-001	$ 51.00	1U4-002	$ 51.00
3	6½	2U4-001	65.00	2U4-002	65.00
5	5¾	3U4-001	104.00	3U4-002	104.00
7½	5½	4U4-001	134.00	4U4-002	134.00
10	7½	5U4-001	158.00	5U4-002	158.00
15	8½	6U4-001	199.00	6U4-002	199.00
25	20	7U4-001	282.00	7U4-002	282.00
37½	35	8U4-001	370.00	8U4-002	370.00
50	40	9U4-001	454.00	9U4-002	454.00
75	41	10U4-001	605.00	10U4-002	605.00
100	44	11U4-001	753.00	11U4-002	753.00

†If low voltage 120 only is required, deduct **$3.00** list price.

High Voltage **2400/4160 Y/4800/8320 Y**
Low Voltage **120/240**

		Class A		Class B-1	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each
1½	6½	1U5-001	$ 60.00	1U5-002	$ 60.00
3	6½	2U5-001	69.00	2U5-002	69.00
5	5¾	3U5-001	107.00	3U5-002	107.00
7¾	7	4U5-001	143.00	4U5-002	143.00
10	8½	5U5-001	168.00	5U5-002	168.00
15	12¼	6U5-001	210.00	6U5-002	210.00
25	19	7U5-001	304.00	7U5-002	304.00
37½	32	8U5-001	405.00	8U5-002	405.00
50	39	9U5-001	494.00	9U5-002	494.00
75	41	10U5-001	656.00	10U5-002	656.00
100	44	11U5-001	807.00	11U5-002	807.00

High Voltage 7200/6875/6545/6220/12470 Y
Low Voltage 120/240

1½	6½	1U6-001	65.00	1U6-002	65.00
3	6	2U6-001	79.00	2U6-002	79.00
5	5¾	3U6-001	125.00	3U6-002	125.00
7½	11	4U6-001	169.00	4U6-002	169.00
10	14½	5U6-001	198.00	5U6-002	198.00
15	15½	6U6-001	249.00	6U6-002	249.00
25	23	7U6-001	349.00	7U6-002	349.00
37½	33	8U6-001	458.00	8U6-002	458.00
50	42	9U6-001	555.00	9U6-002	555.00
75	46	10U6-001	734.00	10U6-002	734.00
100	55	11U6-001	877.00	11U6-002	877.00

High Voltage **7620/7240/6860/13200 Y**
Low Voltage **120/240**

1½	6½	1U7-001	65.00	1U7-002	65.00
3	6	2U7-001	79.00	2U7-002	79.00
5	8	3U7-001	125.00	3U7-002	125.00
7½	9½	4U7-001	169.00	4U7-002	169.00
10	15	5U7-001	198.00	5U7-002	198.00
15	16	6U7-001	249.00	6U7-002	249.00
25	23	7U7-001	349.00	7U7-002	349.00
37½	34	8U7-001	458.00	8U7-002	458.00
50	42	9U7-001	555.00	9U7-002	555.00
75	46	10U7-001	734.00	10U7-002	734.00
100	55	11U7-001	877.00	11U7-002	877.00

High Voltage **12000/11400/10800**
Low Voltage **120/240**

3‡	....	....	....	....	....
5	15	3U8-001	147.00	....	....
10	15	5U8-001	222.00	....	....
15	16	6U8-001	274.00	....	....
25	32	7U8-001	377.00	....	....
37½	35	8U8-001	487.00	....	....
50	44	9U8-001	586.00	....	....
75	50	10U8-001	765.00	....	....
100	60	11U8-001	908.00	....	....

High Voltage **13200/12540/11880**
Low Voltage **120/240**

3‡	....	....	....	....	....
5	15	3U9-001	164.00	....	....
10	15	5U9-001	243.00	....	....
15	18	6U9-001	296.00	....	....
25	31	7U9-001	401.00	....	....
37½	34	8U9-001	512.00	....	....
50	44	9U9-001	613.00	....	....
75	50	10U9-001	793.00	....	....
100	60	11U9-001	937.00	....	....

*Weight gallon oil, 7½ pounds.

‡Prices on request.

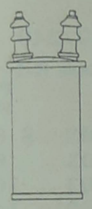
For ordering information, see suggestions at end of transformer section.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

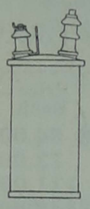
TYPE S CONVENTIONAL DISTRIBUTION TRANSFORMERS

With Cover-Mounted High-Voltage Bushings

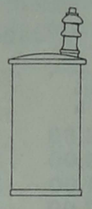
Single Phase — 60-Cycle Service



Class A



Class B-1



Class B-2

Class A

Two cover-mounted high-voltage bushings — round tanks. List price includes: Hanger Bracket for direct pole mounting and standard accessories.

Application: Single phase conventional transformers in voltage classes 7620 volts and below, are suitable for Delta or Star connection — 12000 and 13200 voltage classes are suitable for Delta connection only.

Class B-1

One fully-insulated high-voltage bushing and one neutral bushing, cover mounted—round tanks. List price includes: Hanger Bracket for direct pole mounting and standard accessories.

Application: Single phase transformers suitable for operation on three phase, four wire systems with neutral grounded at the substation or at the individual transformer.

Class B-2

One cover-mounted high-voltage bushing — round tanks. Uninsulated end of H. V. winding and mid point of L. V. winding permanently grounded to the tank. List price includes: Hanger Bracket for direct pole mounting and standard accessories.

Application: Single phase transformers suitable for operation on three phase, four wire systems with neutral grounded at each transformer.

General Information

Voltage classes correspond to N.E.M.A. Standards. L. V. Bushings are stud type. Transformers through 25 Kv-a., 120/240 volts, and through 50 Kv-a., 240/480 volts, have three terminals brought out and may be reconnected internally for full capacity two-wire service. Ratings 37½ and 50 Kv-a., 120/240 volts, have four terminals brought out of the tank. These may be connected externally for 3-wire or full capacity 2-wire service.

H. V. Bushings are stud type. Solderless Connectors are provided on all bushings.

Hanger Brackets for three direct pole mounting positions are supplied at no extra cost on the following ratings:

Voltage Class	Bracket S#986331 Kv-a. Rating
4800 and less	1½ to 15
7200 to 13200, incl.	1½ to 10

Higher Kv-a. ratings than these have hanger lugs for direct pole mounting, welded directly to the tank. These afford one mounting position only. Ratings using bracket Cat. No. 986331 are equipped with three sets of hanger lugs spaced 120 degrees apart around the periphery of the tank. This permits the mounting of the tank in any of three positions, placing the low voltage bushings on the right, on the left or directly opposite the pole, giving the most economical arrangement of low voltage connections for each installation.

Hanger Brace — For mounting a single transformer on a pole, using one cross-arm, a hanger brace, Cat. No. 851213 should be ordered.

A Solderless Ground Connector is supplied on all Class B-2 transformers.

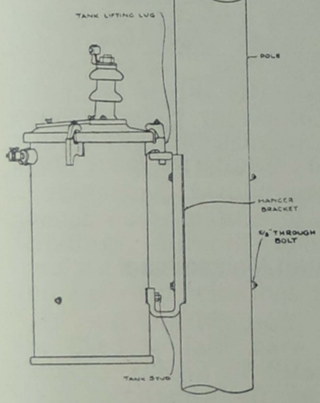


Fig. 1
Small Rating with Direct Pole Mounting Bracket

Bold Face Type Denotes Nominal Voltage and Full Capacity Taps

High Voltage **2400/4160 Y** Low Voltage **120/240**

		Class A		Class B-1		Class B-2	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1½	4	1C3-001	$ 55.00	1C3-002	$ 55.00	1C3-003	$ 51.00
3	6	2C3-001	66.00	2C3-002	66.00	2C3-003	62.00
5	6½	3C3-001	103.00	3C3-002	103.00	3C3-003	99.00
7½	6	4C3-001	132.00	4C3-002	132.00	4C3-003	128.00
10	7½	5C3-001	156.00	5C3-002	156.00	5C3-003	152.00
15	8	6C3-001	195.00	6C3-002	195.00	6C3-003	191.00
25	24	7C3-001	276.00	7C3-002	276.00	7C3-003	272.00
37½	27	8C3-001	370.00	8C3-002	370.00	8C3.003	367.00
50	46	9C3-001	454.00	9C3-002	454.00	9C3-003	451.00
High Voltage **2400/2280/2160/4160 Y** Low Voltage **120/140**							
1½	4	1C4-001	55.00	1C4-002	55.00	1C4-003	51.00
3	6	2C4-001	69.00	2C4-002	69.00	2C4-003	65.00
5	6½	3C4-001	108.00	3C4-002	108.00	3C4-003	104.00
7½	6	4C4-001	138.00	4C4-002	138.00	4C4-003	134.00
10	7½	5C4-001	162.00	5C4-002	162.00	5C4-003	158.00
15	8	6C4-001	203.00	6C4-002	203.00	6C4-003	199.00
25	24	7C4-001	286.00	7C4-002	286.00	7C4-003	282.00
37½	27	8C4-001	370.00	8C4-002	370.00	8C4-003	367.00
50	46	9C4-001	454.00	9C4-002	454.00	9C4-003	451.00
75	....	10C4-001	605.00	10C4-002	605.00	10C4-003	602.00
100	....	11C4-001	753.00	11C4-002	753.00	11C4-003	750.00

*Weight gallon oil — 7½ pounds.

For ordering information, see suggestions at end of transformer section.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

TYPE S CONVENTIONAL DISTRIBUTION TRANSFORMERS

With Cover-Mounted High-Voltage Bushings

Single Phase — 60-Cycle Service

Bold Face Type Denotes Nominal Voltage and Full-Capacity Taps

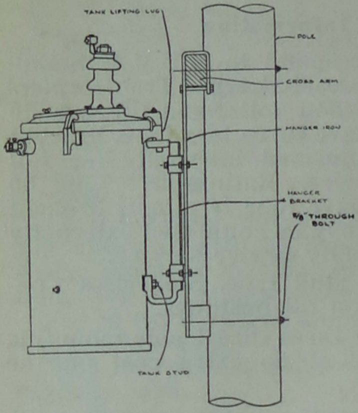


Fig. 2
Small Rating with Cross-Arm Hanger Irons

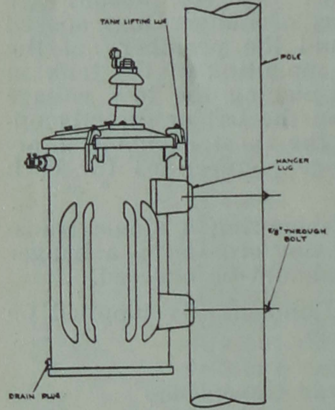


Fig. 3
Large Rating with Direct Pole Mounting Bracket

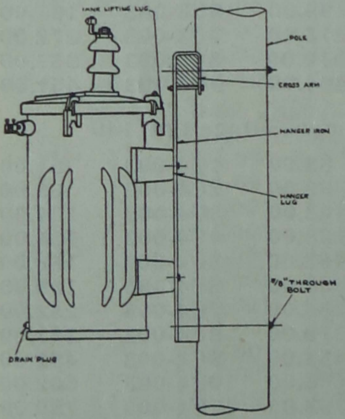


Fig. 4
Large Rating with Cross-Arm Hanger Irons

High Voltage **2400/4160 Y/4800/8320 Y** Low Voltage **120/240**

		Class A		Class B-1		Class B-2	
Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1½†	4	**1C5-001**	**$ 64.00**	**1C5-002**	**$ 64.00**	**1C5-003**	**$ 60.00**
3	6	**2C5-001**	**73.00**	**2C5-002**	**73.00**	**2C5-003**	**69.00**
5	6½	**3C5-001**	**111.00**	**3C5-002**	**111.00**	**3C5-003**	**107.00**
7½	7	**4C5-001**	**147.00**	**4C5-002**	**147.00**	**4C5-003**	**143.00**
10	8½	**5C5-001**	**172.00**	**5C5-002**	**172.00**	**5C5-003**	**168.00**
15	12	**6C5-001**	**214.00**	**6C5-002**	**214.00**	**6C5-003**	**210.00**
25	22	**7C5-001**	**308.00**	**7C5-002**	**308.00**	**7C5-003**	**304.00**
37½	26	**8C5-001**	**405.00**	**8C5-002**	**405.00**	**8C5-003**	**402.00**
50	46	**9C5-001**	**494.00**	**9C5-002**	**494.00**	**9C5-003**	**491.00**
75	**	**10C5-001**	**656.00**	**10C5-002**	**656.00**	**10C5-003**	**653.00**
100	**	**11C5-001**	**807.00**	**11C5-002**	**807.00**	**11C5-003**	**804.00**

High Voltage **7200**/6875/6545/6220/**12470 Y** Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1½	4	**1C6-001**	**65.00**	**1C6-002**	**65.00**	**1C6-003**	**61.00**
3	6½	**2C6-001**	**79.00**	**2C6-002**	**79.00**	**2C6-003**	**75.00**
5	6½	**3C6-001**	**125.00**	**3C6-002**	**125.00**	**3C6-003**	**121.00**
7½	10½	**4C6-001**	**169.00**	**4C6-002**	**169.00**	**4C6-003**	**165.00**
10	16	**5C6-001**	**198.00**	**5C6-002**	**198.00**	**5C6-003**	**194.00**
15	22	**6C6-001**	**249.00**	**6C6-002**	**249.00**	**6C6-003**	**245.00**
25	41	**7C6-001**	**349.00**	**7C6-002**	**349.00**	**7C6-003**	**345.00**
37½	45	**8C6-001**	**458.00**	**8C6-002**	**458.00**	**8C6-003**	**454.00**
50	44	**9C6-001**	**555.00**	**9C6-002**	**555.00**	**9C6-003**	**551.00**
75	**	**10C6-001**	**734.00**	**10C6-002**	**734.00**	**10C6-003**	**730.00**
100	**	**11C6-001**	**877.00**	**11C6-002**	**877.00**	**11C6-003**	**873.00**

High Voltage **7620/7240/6860/13200 Y** Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1½	4	**1C7-001**	**65.00**	**1C7-002**	**65.00**	**1C7-003**	**61.00**
3	6½	**2C7-001**	**79.00**	**2C7-002**	**79.00**	**2C7-003**	**75.00**
5	6½	**3C7-001**	**125.00**	**3C7-002**	**125.00**	**3C7-003**	**121.00**
7½	10½	**4C7-001**	**169.00**	**4C7-002**	**169.00**	**4C7-003**	**165.00**
10	16	**5C7-001**	**198.00**	**5C7-002**	**198.00**	**5C7-003**	**194.00**
15	22	**6C7-001**	**249.00**	**6C7-002**	**249.00**	**6C7-003**	**245.00**
25	41	**7C7-001**	**349.00**	**7C7-002**	**349.00**	**7C7-003**	**345.00**
37½	45	**8C7-001**	**458.00**	**8C7-002**	**458.00**	**8C7-003**	**454.00**
50	44	**9C7-001**	**555.00**	**9C7-002**	**555.00**	**9C7-003**	**551.00**
75	**	**10C7-001**	**734.00**	**10C7-002**	**734.00**	**10C7-003**	**730.00**
100	**	**11C7-001**	**877.00**	**11C7-002**	**877.00**	**11C7-003**	**873.00**

High Voltage **12000/11400/10800** Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
3‡	----	----------	----------	----------	----------	----------	----------
5	17	**3C8-001**	**147.00**	----------	----------	----------	----------
10	16	**5C8-001**	**222.00**	----------	----------	----------	----------
15	22	**6C8-001**	**274.00**	----------	----------	----------	----------
25	41	**7C8-001**	**377.00**	----------	----------	----------	----------
37½	45	**8C8-001**	**487.00**	----------	----------	----------	----------
50	44	**9C8-001**	**586.00**	----------	----------	----------	----------
75	**	**10C8-001**	**765.00**	----------	----------	----------	----------
100	**	**11C8-001**	**908.00**	----------	----------	----------	----------

High Voltage **13200/12540/11880** Low Voltage **120/240**

Cap. Kv-a.	Gal. Oil*	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
3‡	----	----------	----------	----------	----------	----------	----------
5	17	**3C9-001**	**164.00**	----------	----------	----------	----------
10	16	**5C9-001**	**243.00**	----------	----------	----------	----------
15	22	**6C9-001**	**296.00**	----------	----------	----------	----------
25	41	**7C9-001**	**401.00**	----------	----------	----------	----------
37½	45	**8C9-001**	**512.00**	----------	----------	----------	----------
50	44	**9C9-001**	**613.00**	----------	----------	----------	----------
75	**	**10C9-001**	**793.00**	----------	----------	----------	----------
100	**	**11C9-001**	**937.00**	----------	----------	----------	----------

*Weight gallon oil — 7½ lbs.
For ordering information, see suggestions at end of transformer section.
**Weights and dimensions on request.
‡Prices on request.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

TYPE SL DISTRIBUTION TRANSFORMERS
OIL-INSULATED—SELF-COOLED—60 CYCLES

Single Phase—13200 Voltage Class and Below—101 to 500 Kv-a. Inclusive.
22000 Voltage Class and Above—All Ratings Up to and Including 500 Kv-a.

Three Phase—13200 Voltage Class and Below—201 to 500 Kv-a. Inclusive.
22000 Voltage Class and Above—All Ratings Up to and Including 500 Kv-a.

200-Kv-a., Single Phase, High Voltage 6900, Low Voltage 240/120

Westinghouse Type SL distribution transformers represent the ultimate in transformer design, the core and coils being redesigned from time to time, embodying both electrical and mechanical improvements.

All SL transformers are built for outdoor service. Impulse strength of the bushings and winding insulation is coordinated throughout the entire line so that standard A.I.E.E. tests may be applied on any transformer.

The single phase design will be either single-legged in the very small sizes or two-legged for the larger sizes. Three phase designs have three-legged cores. The high-voltage and low-voltage windings are of circular form and are assembled concentrically on these legs. All structural parts within the transformer for bracing the core are made from structural steel, electrically welded.

"Balanced Insulation Method" assures the proper coordination of insulation throughout the windings. Micarta tubes are used for the major insulation between high and low-voltage windings and between windings and core.

In coil construction, several types of windings are used to take care of the wide voltage and capacity ranges of these transformers. To withstand mechanical stresses on short-circuits, and to assure a tightly clamped winding at all times, Westinghouse has developed the "Unipressure" method of coil bracing.

The magnetic circuit is assembled with I-plates of carefully annealed, non-aging, silicon sheet-steel of the highest quality. Punchings of different width are used to approximate a circular core section.

Condenser bushings are an exclusive Westinghouse development. Each consists of a circular condenser protected on its outer end by a wet-process porcelain weather casing, clamped between a press fit mounting flange and a spring cap and is filled with low-melting-point compound.

The hand-operated tap changer provided for most sizes of Type SL transformers provides a quick and convenient method of changing.

Instructions for Ordering

Catalog number includes transformer only with oil. When ordering, in addition to giving the catalog number, state the quantity desired, capacity, phase, frequency, high voltage and low voltage.

Accessories will be regularly supplied on ratings as indicated in "Accessories Table" below.

Type SL transformers can be supplied with Inerteen, a non-inflammable and non-explosive liquid.

For clamp connectors, see table below. Type SL transformers 13200 volt class and below all Kv-a. can be surge protected by the addition of De-ion gaps.

Bold face type denotes full capacity taps.

Single Phase—60 Cycles

High Voltage 2400/2280/2160/4160Y Low Voltage 120/240*

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shpg.	Price Each
12C4–001	150	145	2800	3000	**$1047.00**
13C4–001	200	145	3100	3300	**1311.00**
14C4–001	250	210	4800	5000	**1563.00**
15C4–001	333	205	5300	5550	**1955.00**
16C4–001	500	260	6750	7000	**2605.00**
High Voltage 2400/2280/2160/4160Y Low Voltage 240/480**					
12C4–011	150	145	2800	3000	**1018.00**
13C4–011	200	145	3100	3300	**1270.00**
14C4–011	250	200	4600	4800	**1506.00**
15C4–011	333	200	5200	5450	**1876.00**
16C4–011	500	271	6950	7200	**2507.00**
High Voltage 2400/2280/2160/4160Y Low Voltage 600					
12C4–021	150	145	2800	3000	**1003.00**
13C4–021	200	145	3100	3300	**1232.00**
14C4–021	250	200	4600	4800	**1440.00**
15C4–021	333	200	5200	5450	**1778.00**
16C4–021	500	255	6610	6860	**2382.00**
High Voltage 2400/2280/2160/4160Y 4800/4560/4320/8320Y Low Voltage 120/240*					
12C5–001	150	145	2800	3000	**1097.00**
13C5–001	200	145	3100	3300	**1347.00**
14C5–001	250	210	4800	5000	**1594.00**
15C5–001	333	200	5200	5450	**1974.00**
16C5–001	500	300	6900	7150	**2622.00**
High Voltage 2400/2280/2160/4160Y 4800/4560/4320/8320Y Low Voltage 240/480**					
12C5–011	150	145	2800	3000	**1065.00**
13C5–011	200	145	3100	3300	**1304.00**
14C5–011	250	200	4550	4750	**1535.00**
15C5–011	333	200	5300	5550	**1894.00**
16C5–011	500	265	6550	6800	**2523.00**

*Transformers rated at 200 Kv-a. and below, having low-voltage ratings of 120/240 volts, are suitable for series multiple or 3-wire service (4 L.V. Bushings supplied; transformer rated at 250 Kv-a., 333 Kv-a. or 500 Kv-a. are suitable for series or 3-wire service only and cannot be connected for full capacity at 120 volt (3 L.V. Bushings supplied).

**Transformers having low-voltage rating of 240/480 are suitable for series or multiple service only and cannot be connected for 240/480 volt, 3-wire service (4 L.V. Bushings supplied).

†Includes oil and accessories.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

TYPE SL DISTRIBUTION TRANSFORMERS

OIL-INSULATED — SELF-COOLED — 60 CYCLES

Single Phase — 13200 Voltage Class and Below — 101 to 500 Kv-a. Inclusive.
22000 Voltage Class and Above — All Ratings Up to and Including 500 Kv-a.

Three Phase — 13200 Voltage Class and Below — 201 to 500 Kv-a. Inclusive.
22000 Voltage Class and Above — All Ratings Up to and Including 500 Kv-a.

Bold face type denotes full capacity taps

Single Phase — 60 Cycles

High Voltage **2400/2280/2160/4160Y**
4800/4560/4320/8320Y
Low Voltage **600**

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C5-021	150	145	2800	3000	**$1050.00**
13C5-021	200	145	3100	3300	**1265.00**
14C5-021	250	200	4550	4750	**1468.00**
15C5-021	333	200	5200	5450	**1796.00**
16C5-021	500	265	6550	6800	**2398.00**

High Voltage **7200/6875/6545**F.C./6220R.C./**12470Y**
Low Voltage **120/240***

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C6-001	150	145	2900	3100	**1163.00**
13C6-001	200	150	3150	3350	**1402.00**
14C6-001	250	210	4850	5050	**1641.00**
15C6-001	333	200	5300	5650	**2004.00**
16C6-001	500	290	7200	7450	**2668.00**

High Voltage **7200/6875/6545**F.C./6220R.C./**12470Y**
Low Voltage **240/480****

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C6-011	150	145	2900	3100	**1130.00**
13C6-011	200	150	3150	3350	**1357.00**
14C6-011	250	200	4600	4800	**1582.00**
15C6-011	333	200	5300	5550	**1923.00**
16C6-011	500	260	7000	7250	**2567.00**

High Voltage **7200/6875/6545**F.C./6220R.C./**12470Y**
Low Voltage **600**

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C6-021	150	145	2900	3100	**1113.00**
13C6-021	200	150	3150	3350	**1318.00**
14C6-021	250	200	4600	4800	**1512.00**
15C6-021	333	200	5300	5550	**1822.00**
16C6-021	500	260	7000	7250	**2438.00**

H.V. **7200/6840/6480/12470Y**—L.V. **2400**

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C6-031	150	145	2900	3100	**1102.00**
13C6-031	200	150	3150	3350	**1299.00**
14C6-031	250	200	4600	4800	**1483.00**
15C6-031	333	200	5300	5550	**1772.00**
16C6-031	500	260	7000	7250	**2307.00**

H.V. **7620/7240/6860/13200Y**—L.V. **120/240***

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C7-001	150	145	2900	3100	**1163.00**
13C7-001	200	150	3150	3350	**1402.00**
14C7-001	250	210	4850	5050	**1641.00**
15C7-001	333	200	5300	5550	**2004.00**
16C7-001	500	290	7200	7450	**2668.00**

H.V. **7620/7240/6860/13200Y**—L.V. **240/480****

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C7-011	150	145	2900	3100	**1130.00**
13C7-011	200	150	3150	3350	**1357.00**
14C7-011	250	200	4600	4800	**1582.00**
15C7-011	333	200	5300	5550	**1923.00**
16C7-011	500	260	7000	7250	**2567.00**

H.V. **7620/7240/6860/13200Y**—L.V. **600**

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C7-021	150	145	2900	3100	**1113.00**
13C7-021	200	150	3150	3350	**1318.00**
14C7-021	250	200	4600	4800	**1512.00**
15C7-021	333	200	5300	5550	**1822.00**
16C7-021	500	260	7000	7250	**2438.00**

H.V. **7620/7240/6860/13200Y**—L.V. **2400**

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C7-031	150	145	2900	3100	**1102.00**
13C7-031	200	150	3150	3350	**1299.00**
14C7-031	250	200	4600	4800	**1483.00**
15C7-031	333	200	5300	5550	**1772.00**
16C7-031	500	260	7000	7250	**2307.00**

High Voltage **12000/11400/10800**
Low Voltage **120/240***

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C8-001	150	140	2950	3150	**$1183.00**
13C8-001	200	145	3200	3400	**1413.00**
14C8-001	250	210	4850	5050	**1641.00**
15C8-001	333	200	5300	5550	**2004.00**
16C8-001	500	290	7200	7450	**2668.00**

High Voltage **12000/11400/10800**
Low Voltage **240/480****

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C8-011	150	140	2950	3150	**1149.00**
13C8-011	200	145	3200	3400	**1367.00**
14C8-011	250	200	4600	4800	**1582.00**
15C8-011	333	200	5300	5550	**1923.00**
16C8-011	500	260	7000	7250	**2567.00**

High Voltage **12000/11400/10800**
Low Voltage **600**

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C8-021	150	140	2950	3150	**1113.00**
13C8-021	200	145	3200	3400	**1328.00**
14C8-021	250	200	4600	4800	**1512.00**
15C8-021	333	200	5300	5550	**1822.00**
16C8-021	500	260	7000	7250	**2438.00**

High Voltage **12000/11400/10800**
Low Voltage **2400/4160Y**

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C8-031	150	140	2950	3150	**1122.00**
13C8-031	200	145	3200	3400	**1308.00**
14C8-031	250	200	4600	4800	**1483.00**
15C8-031	333	200	5300	5550	**1772.00**
16C8-031	500	260	7000	7250	**2307.00**

High Voltage **13200/12540/11880**
Low Voltage **120/240***

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C9-001	150	140	2950	3150	**1202.00**
13C9-001	200	145	3200	3400	**1422.00**
14C9-001	250	210	4850	5050	**1641.00**
15C9-001	333	200	5300	5550	**2004.00**
16C9-001	500	290	7200	7450	**2668.00**

High Voltage **13200/12540/11880**
Low Voltage **240/480****

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C9-011	150	140	2950	3150	**1167.00**
13C9-011	200	145	3200	3400	**1376.00**
14C9-011	250	200	4600	4800	**1582.00**
15C9-011	333	200	5300	5550	**1923.00**
16C9-011	500	260	7000	7250	**2567.00**

High Voltage **13200/12540/11880**
Low Voltage **600**

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C9-021	150	140	2950	3150	**1151.00**
13C9-021	200	145	3200	3400	**1336.00**
14C9-021	250	200	4600	4800	**1512.00**
15C9-021	333	200	5300	5550	**1822.00**
16C9-021	500	260	7000	7250	**2438.00**

High Voltage **13200/12540/11880**
Low Voltage **2400/4160Y**

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.† Net	Approx. Wt.† Shp.	Price Each
12C9-031	150	140	2950	3150	**1139.00**
13C9-031	200	145	3200	3400	**1316.00**
14C9-031	250	200	4600	4800	**1483.00**
15C9-031	333	200	5300	5550	**1772.00**
16C9-031	500	260	7000	7250	**2307.00**

Transformers rated at 200 Kv-a. and below, having low-voltage ratings of 120/240 volts, are suitable for series multiple or 3-wire service; (4 L.V. Bushings supplied) transformers rated at 250 Kv-a., 333 Kv-a. or 500 Kv-a. are suitable for series or 3-wire service only and cannot be connected for full capacity at 120 volt. (3 L.V. Bushings supplied).

**Transformers having low-voltage rating of 240/480 are suitable for series or multiple service only and can cannot be connected for 240/480 volt, 3-wire service. (4 L.V. Bushings supplied).

†Includes oil and accessories.

WESTINGHOUSE DISTRIBUTION TRANSFORMERS

TYPE SL DISTRIBUTION TRANSFORMERS
OIL-INSULATED — SELF COOLED — 60 CYCLES

Single Phase—13200 Voltage Class and Below—101 to 500 Kv-a. Inclusive
22000 Voltage Class and Above—All Ratings Up to and Including 500 Kv-a.
Three Phase—13200 Voltage Class and Below—201 to 500 Kv-a. Inclusive
22000 Voltage Class and Above—All Ratings Up to and Including 500 Kv-a.
Bold face type denotes full capacity taps

Single Phase—60 Cycles

High Voltage **22000/20900/19800**
Low Voltage **120/240***

Cat. No.	Cap. Kv-a.	Gal. Oil	Approx. Wt.†		Price Each
			Net	Shp.	
5C10-001	10	73	1380	1490	**$ 619.00**
6C10-001	15	72	1420	1530	**671.00**
7C10-001	25	70	1510	1660	**762.00**
8C10-001	37½	88	1850	2000	**860.00**
9C10-001	50	86	1980	2130	**942.00**
10C10-001	75	110	2370	2570	**1100.00**
11C10-001	100	111	2680	2880	**1234.00**
12C10-001	150	158	3630	3830	**1485.00**
13C10-001	200	161	3960	4160	**1731.00**
14C10-001	250	205	4900	5100	**1973.00**
15C10-001	333	225	5550	5800	**2326.00**
16C10-001	500	290	7150	7400	**2934.00**

High Voltage **22000/20900/19800**
Low Voltage **240/480****

5C10-011	10	73	1380	1490	**619.00**
6C10-011	15	72	1420	1530	**671.00**
7C10-011	25	70	1510	1660	**762.00**
8C10-011	37½	88	1840	1990	**860.00**
9C10-011	50	86	1970	2120	**942.00**
10C10-011	75	110	2360	2560	**1100.00**
11C10-011	100	111	2660	2860	**1234.00**
12C10-011	150	158	3610	3810	**1443.00**
13C10-011	200	161	3910	4110	**1674.00**
14C10-011	250	205	4900	5100	**1902.00**
15C10-011	333	225	5550	5800	**2233.00**
16C10-011	500	290	7150	7400	**2824.00**

High Voltage **22000/20900/19800**
Low Voltage **600**

5C10-021	10	73	1370	1480	**619.00**
6C10-021	15	72	1410	1520	**671.00**
7C10-021	25	70	1500	1650	**762.00**
8C10-021	37½	88	1840	1990	**860.00**
9C10-021	50	86	1960	2110	**942.00**
10C10-021	75	110	2350	2550	**1100.00**
11C10-021	100	111	2630	2830	**1234.00**
12C10-021	150	158	3580	3780	**1421.00**
13C10-021	200	161	3890	4090	**1626.00**
14C10-021	250	205	4900	5100	**1818.00**
15C10-021	333	225	5550	5800	**2118.00**
16C10-021	500	290	7150	7400	**2680.00**

High Voltage **22000/20900/19800**
Low Voltage **2400/4160***

5C10-031	10	73	1380	1490	**619.00**
6C10-031	15	72	1420	1530	**671.00**
7C10-031	25	70	1510	1660	**762.00**
8C10-031	37½	88	1850	2000	**860.00**
9C10-031	50	86	1970	2120	**942.00**
10C10-031	75	110	2360	2560	**1100.00**
11C10-031	100	111	2650	2850	**1234.00**
12C10-031	150	158	3600	3800	**1408.00**
13C10-031	200	161	3900	4100	**1602.00**
14C10-031	250	190	4750	4950	**1782.00**
15C10-031	333	225	5550	5800	**2058.00**
16C10-031	500	290	7075	7325	**2538.00**

*Transformers rated at 200 Kv-a. and below, having low-voltage ratings of 120/240 volts, are suitable for series multiple or 3-wire service (4 L.V. Bushings supplied); transformers rated at 250 Kv-a., 333 Kv-a. or 500 Kv-a. are suitable for series or 3-wire service only and cannot be connected for full capacity at 120 volt (3 L.V. Bushings supplied).

**Transformers having low-voltage rating of 240/480 are suitable for series or multiple service only and cannot be connected for 240/480 volt, 3-wire service (4 L.V. Bushings supplied).

†Includes oil and accessories.

ACCESSORIES

Standard Accessories for Westinghouse Small Distribution Transformers

Rating of High Voltage Winding

4800 Volt Class and Below	**7200 Volt Class and Above**
Diagram Nameplate	
All Standard Ratings	All Standard Ratings
Hanger Brackets for Direct Pole Mounting	
1½ to 25 Kv-a.	1½ to 15 Kv-a.
Oil Drain Plug*	
15 to 50 Kv-a.	10 to 50 Kv-a.
Tap Changers	
....	1½ to 50 Kv-a.

*No provision regularly made for draining tanks of smaller transformers than listed here.

Other Accessories for Westinghouse Small Distribution Transformers

Hanger Irons for Cross-Arm Mounting

4800 Volts and Less	**7200 to 13200 Volts, Incl.**	**List Price Per Set**
1½ to 25 Kv-a.	1½ to 15 Kv-a.	**$2.00**
....	25 Kv-a.	**4.00**
37½ to 100 Kv-a.	37½ to 50 Kv-a.	**4.00**

Hanger Brace Catalog Number **851213**, List Price **$0.50** each transformer.

Ordering Information

Important — Give complete transformer rating in addition to catalog number. Example: 2U4-201, 3 Kv-a., single phase, 60 Cycle Class A, CSP distribution transformer, H. V. 2400/2280/2160; L. V. 120/240 volts.

1 — **Transformer catalog numbers** do not include hanger irons for cross-arm mounting.

2 — **Cross-Arm Hangers.** Add separate item on order calling for proper style hanger iron. When cross-arm hangers are required, use price addition as listed under "Other Accessories" above.

3 — **Hanger Brace.** When hanger brace No. 851213 is required, add separate item on order showing price addition listed under "Other Accessories."

4 — **Tank Discharge Gap.** When tank discharge gap is not required on Class A or Class B-1 transformers, omit at $2.00 list per transformer and refer to omission in order write up.

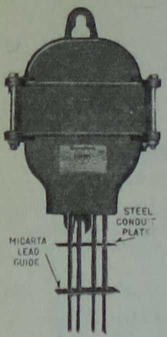
5 — **TR Breaker.** On 37½ and 50 Kv-a. CSP's, where low voltage is 240/480, omit one TR breaker at $20 list per transformer. Two breakers are used with low voltages 120/240 on these ratings.

6 — **FR Breaker.** 1½ and 3 Kv-a., CSP transformers in 7620 volt class and below, and 3 Kv-a. in 12000 and 13200 volt classes, are equipped with FR breaker without signal light. All other ratings are equipped with TR breaker with signal light. If the TR breaker is desired instead of the FR, add $10 list per transformer and specify in order write up.

7 — **Special Low Voltage.** When low voltages of 240/480 are required, change next to the last figure in the catalog number from 0 to 1. Example: Catalog number 1U4-201 covering low voltage of 120/240 would become 1U4-211 for low voltage of 240/480. Price will be the same as transformer having low voltage of 120/240, except as covered in paragraph 5.

WESTINGHOUSE DRY-TYPE TRANSFORMERS

TYPES JR AND VR



Type J

Safe, convenient and economical for applications where small Kv-a. sizes are required and where space limitations and insurance regulations prohibit the use of oil-insulated apparatus. Used either indoors or outdoors; insulating a lighting circuit from a power circuit; operating small portable tools not suitable for connection to a power line, and to eliminate the fire hazard usually associated with oil-insulated apparatus.

Type JR — Single Phase — 60 Cycles

460 Volts

Cat. No.	Cap Kv-a.	Volt Rating Primary	Volt Rating Sec.	Shp. Wgt.	Price Each
911413	1			47	$ **51.00**
911414	1½			61	**64.00**
911415	2	440/220	220/110	78	**76.00**
911416	3	460/230	230/115	107	**102.00**
911417	5	480/240	240/120	162	**148.00**
911418	7½			237	**205.00**
911419	10			314	**257.00**

575 Volts

Cat. No.	Cap Kv-a.	Volt Rating Primary	Volt Rating Sec.	Shp. Wgt.	Price Each
1026502	1			47	**53.00**
1026503	1½			61	**67.00**
1026504	2	550	220/100	78	**80.00**
1026505	3	575	230/115	107	**107.00**
1026506	5	600	240/120	162	**155.00**
1026507	7½			237	**214.00**
1026508	10			314	**269.00**

Type VR — Single Phase — 60 Cycles

460 Volts

Cat. No.	Cap Kv-a.	Volt Rating Primary	Volt Rating Sec.	Shp. Wgt.	Price Each
1023300	15	440/220	220/110	420	**359.00**
1023301	25	460/230	230/115	640	**558.00**
1023302	37½	480/240	240/120	975	**717.00**
1023303	50			1160	**869.00**

575 Volts

Cat. No.	Cap Kv-a.	Volt Rating Primary	Volt Rating Sec.	Shp. Wgt.	Price Each
1026509	15	550	220/110	420	**376.00**
1026510	25	575	230/115	640	**584.00**
1026511	37½	600	240/120	975	**750.00**
1026512	50			1160	**910.00**

TYPES J AND V DRY TYPE AUTO-TRANSFORMERS

For use where range of voltage change is small, and where high voltage is not above the 600-volt class. Since only a portion of the energy of the circuit is actually transformed, the transformers may be of much smaller size than two-winding transformers.

Type J

Cat. No.	Cap Kv-a.	Volt Rating Primary	Volt Rating Sec.	Shp. Wgt.	Price Each
911402	1		110	24	$ **32.00**
911403	1½		115	31¼	**40.00**
911404	2		120	37	**48.00**
911405	3	220	2 Wire	49½	**60.00**
911406	5	230	or	91½	**84.00**
911407	7½	240	220/110	127	**112.00**
911408	10		230/115	173	**140.00**
911409	15		240/120	263	**193.00**
911410	20		3 Wire	325	**242.00**

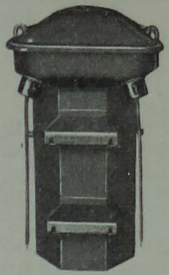
Type V

Cat. No.	Cap Kv-a.	Volt Rating Primary	Volt Rating Sec.	Shp. Wgt.	Price Each
1023304	25		110	400	**291.00**
1023305	37½	220	115	540	**408.00**
1023306	50	230	120	655	**526.00**
1023307	75	240	2 Wire	1000	**676.00**
1023308	100		or	1190	**820.00**
			220/110		
			230/115		
			240/120		
			3 Wire		

WESTINGHOUSE BALANCE COILS

TYPE S BALANCE COILS

For Alternating-Current Systems



Small 3-Wire Balance Coil

A balance coil is an autotransformer used for obtaining a number of lower voltage circuits from an alternating current distributing system.

The three-wire type is for obtaining from a 240-volt two-wire circuit a three-wire 240-120-volt distribution system.

Five-wire type is listed for obtaining from a 480-volt circuit a five-wire distribution system.

The rated kilovolt-ampere capacities of these coils represent the maximum unbalancing allowable between any two circuits. The balanced load does not pass through the balance coil. It is the general practice, where the degree of balance is not known, to use a balance coil with a capacity of approximately 25 per cent of the total maximum capacity of the circuit upon which it is used.

Catalog Number includes oil, and all balance coils here listed are shipped in oil. All bushings are stud type.

Price includes balance coil, oil, hanger irons either standard type or for mounting directly on pole. Specify the catalog number of hanger irons wanted.

Single Phase — 60-Cycle

Three-Wire Coil — 240-120 Volts

Cat * No. Balance Coils	Cap. Kv-a.	Gal. Oil	Approx. Wt. Lb. Incl. Oil Net	Approx. Wt. Lb. Incl. Oil Shp.	Price Each
912289	3	3	115	125	$ **59.00**
912290	5	3¼	155	170	**70.00**
912291	7½	3	175	190	**86.00**
912292	10	5	205	225	**106.00**
912293	15	8	255	280	**136.00**
912294	25	10	350	375	**191.00**

Five-Wire Coil — 480-360-240-120 Volts

Cat * No. Balance Coils	Cap. Kv-a.	Gal. Oil	Approx. Wt. Lb. Incl. Oil Net	Approx. Wt. Lb. Incl. Oil Shp.	Price Each
910727	1½	3	115	125	**59.00**
910728	3	3¼	155	170	**75.00**
910729	5	5	205	225	**106.00**
910730	7½	8	255	280	**136.00**
910731	10	18½	325	360	**164.00**
910732	15	9½	385	425	**218.00**

*Catalog Number includes oil and hanger iron, but be sure to specify type of hanger iron desired by its catalog number as follows:

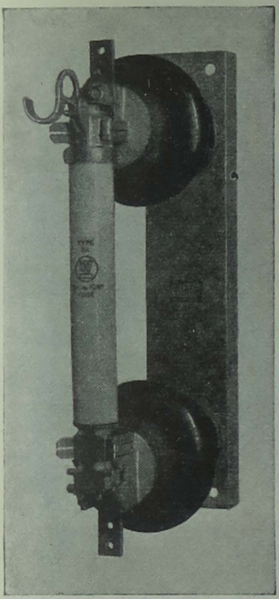
Hanger Irons

Cat.† No.	Description
759019	For Standard Cross-Arm Mounting
912863	For Mounting Directly on Pole

†Include this number on your order.

WESTINGHOUSE POWER TRANSFORMER FUSES

TYPE BA "DE-ION" POWER FUSE



Complete BA "De-ion" Power Fuse and Mounting for 15,000 Volts.

Type BA "De-ion" power fuse, having very high interrupting capacity, opens a field of application hitherto untouched by power fuses. Calculated on the basis of 3-phase power the 4 standard voltage ratings of 7.5, 15, 23 and 34.5 Kv. in BA-200 class, have interrupting capacities of 325,000 Kv-a., 500,000 Kv-a., 600,000 and 600,000 Kv-a. respectively. Rupturing capacity of this degree in power fuse extends the range of application to locations requiring heavier duties than were formerly possible.

The BA "De-ion" power fuse is arranged for outdoor service but may be applied indoors without change. Four voltage ratings only are available—7,500, 15,000, 23,000 and 34,500 volts, and two duty classes—the 200-ampere maximum and the 400-ampere maximum. In each voltage rating fuse elements are available in standard current steps ranging from 5 to 200 amperes for class BA-200. Interrupting capacity varies with voltage ratings only—a change in the current rating of a fuse link does not affect the rupturing capacities at a given voltage, which are as follows:

Voltage Rating	7,500	15,000	23,000	34,500
Int. Cap. 3-Ph. Kv.a.	325,000	500,000	600,000	600,000

The BA "De-ion" power fuse is equally effective in rupturing high or low currents because the design is such that fault currents automatically select either the large or small bore in the "De-ion" element. The "De-ion" chamber is lined with inert boric acid in moulded dry form. There is neither liquid nor loose powder to leak out or change chemically.

OUTDOOR FUSE HOLDERS AND MOUNTINGS

Front Connected Vented Type

Voltage Rating	Max. Ampere Rating	Fuse Holder Cat. No.	Fuse Holder Price Each	Mounting Cat. No.	Mounting Price Each
Type BA-200—Disconnecting					
7500	200	825629	$17.25	825626	$22.20
15000	200	825630	21.75	825627	26.30
23000	200	825631	25.00	825628	29.70
33000-S	200	1043291	33.00	1043699	37.40
34500	200	1043291	33.00	1043289	40.00
Type BA-400—Disconnecting					
7500	400	896681	36.00	896727	28.20
15000	400	896682	46.00	896728	32.30
23000	400	895307	55.00	896729	35.70
33000-S	400	895134	64.00	1043700	43.40
34500	400	895134	64.00	896730	46.00
Type BA-200—180° Opening					
7500	200	1105204	17.25	1105209	22.20
15000	200	1105205	21.75	1105210	26.30
23000	200	1105206	25.00	1105211	29.70
33000-S	200	1105207	33.00	1123928	37.40
34500	200	1105207	33.00	1105212	40.00

Tube or clamp type terminals are included in the mounting price when specified in order, for cable sizes up to 600,000 C.M. or tubing up to ¾ I.P.S. Data on larger terminals on request.

WESTINGHOUSE POWER TRANSFORMER FUSES

TYPE BA "DE-ION" POWER FUSE

OUTDOOR FUSE HOLDERS AND MOUNTINGS

Front Connected Vented Type

Voltage Rating	Max. Ampere Rating	Fuse Holder Cat. No.	Fuse Holder Price Each	Mounting Cat. No.	Mounting Price Each
Type BA-400—180° Opening					
7500	400	1123935	$36.00	1123930	$28.20
15000	400	1123936	46.00	1123931	32.30
23000	400	1123937	55.00	1123932	35.70
33000-S	400	1123938	64.00	1123933	43.40
34500	400	1123938	64.00	1123934	46.00

Front Connected Condenser Type*

Voltage Rating	Max. Ampere Rating	Fuse Holder Cat. No.	Fuse Holder Price Each	Mounting Cat. No.	Mounting Price Each
Type BA-200—Disconnecting					
7500	200	859198	17.25	1043705	22.20
15000	200	859199	21.75	1043706	26.30
23000	200	1043673	25.00	1043707	29.70
33000-S	200	1043691	33.00	1043721	37.40
34500	200	1043691	33.00	1043708	40.00
Type BA-400—Disconnecting					
7500	400	896681	36.00	896727	28.20
15000	400	896682	46.00	896728	32.30
23000	400	895307	55.00	896729	35.70
33000-S	400	895134	64.00	1043700	43.40
34500	400	895134	64.00	896730	46.00

*Condenser for BA-200 type, Cat. No. 859197; Price Each **$10.00**. For BA-400 type, Cat. No. 1014286; Price Each, **$15.00**.

INDOOR FUSE HOLDERS AND MOUNTINGS

Front Connected Vented Type

Voltage Rating	Max. Ampere Rating	Fuse Holder Cat. No.	Fuse Holder Price Each	Mounting Cat. No.	Mounting Price Each
Type BA-100—Non-Disconnecting					
7500	100	940007	13.50	859003	13.15
15000	100	940008	16.50	841831	14.55
23000	100	940009	20.25	859004	18.05
Type BA-200—Disconnecting					
7500	200	825629	17.25	940004	20.50
15000	200	825630	21.75	940005	23.00
23000	200	825631	25.00	940006	27.00
34500	200	1043291	33.00	1043689	34.00
Type BA-400—Disconnecting					
7500	400	896681	36.00	940001	27.00
15000	400	896682	46.00	940002	31.25
23000	400	895307	55.00	940003	34.50
34500	400	895134	64.00	948932	43.00

Front Connected Condenser Type†

Voltage Rating	Max. Ampere Rating	Fuse Holder Cat. No.	Fuse Holder Price Each	Mounting Cat. No.	Mounting Price Each
Type BA-100—Non-Disconnecting					
7500	100	940007	13.50	859003	13.15
15000	100	940008	16.50	841831	14.55
23000	100	940009	20.25	859004	18.05
Type BA-200—Disconnecting					
7500	200	859198	17.25	859206	20.50
15000	200	859199	21.75	859207	23.00
23000	200	859200	25.00	859208	27.00
34500	200	1043691	33.00	1043690	34.00
Type BA-400—Disconnecting					
7500	400	896681	36.00	1014287	27.00
15000	400	896682	46.00	1014427	31.25
23000	400	895307	55.00	940003	34.50
34500	400	895134	64.00	948932	43.00

†Condenser for BA-100 and BA-200 types, Cat. No. 859197; Price Each, **$10.00**. For BA-400 type, Cat. No. 1014286; Price Each, **$15.00**.

Tube or clamp type terminals are included in the mounting price when specified in order, for cable sizes up to 600,000 C.M. or tubing up to ¾ I.P.S. Data on larger terminals on request.

WESTINGHOUSE POWER TRANSFORMER FUSES

TYPE BA "DE-ION" POWER FUSE

INDOOR FUSE HOLDERS AND MOUNTINGS

Rear Connected Vented Type

Voltage Rating	Max. Ampere Rating	Fuse Holder Cat. No.	Fuse Holder Price Each	Mounting Cat. No.	Mounting Price Each
Type BA-200—Disconnecting					
7500	200	**825629**	**$17.25**	**1043692**	**$33.25**
15000	200	**825630**	**21.75**	**1043693**	**37.25**
Type BA-400—Disconnecting					
7500	400	**896681**	**36.00**	**1043696**	**41.50**
15000	400	**896682**	**46.00**	**1043697**	**45.75**

Rear Connected Condenser Type*

Voltage Rating	Max. Ampere Rating	Fuse Holder Cat. No.	Fuse Holder Price Each	Mounting Cat. No.	Mounting Price Each
Type BA-200—Disconnecting					
7500	200	**859198**	**17.25**	**1043694**	**33.25**
15000	200	**859199**	**21.75**	**1043695**	**37.25**
Type BA-400—Disconnecting					
7500	400	**896681**	**36.00**	**1043698**	**41.50**
15000	400	**896682**	**46.00**	**1043697**	**45.75**

*Condenser for BA-200 type, Cat. No. 859197; Price Each, **$10.00**. For BA-400 type, Cat. No. 1014286; Price Each, **$15.00**.

Tube or clamp type terminals are included in the mounting price when specified in order, for cable sizes up to 600,000 C.M. or tubing up to ¾ I.P.S. Data on larger terminals on request.

Standard Refills for BA-100 and BA-200

Amps.	7.5 Kv. Cat. No.	15 Kv. Cat. No.	23 Kv. Cat. No.	34.5 Kv. Cat. No.
½ (PT)	**858999†**	**841737§**	**859000‡**	**1043331¶**
5	**834238†**	**834252§**	**834266‡**	**1043297¶**
8	**918534†**	**918535§**	**918536‡**	**1043298¶**
10	**834239†**	**834253§**	**834267‡**	**1043299¶**
15	**834240†**	**834254§**	**834268‡**	**1043300¶**
20	**834241†**	**834255§**	**834269‡**	**1043301¶**
25	**834242†**	**834256§**	**834270‡**	**1043302¶**
30	**834243†**	**834257§**	**834271‡**	**1043303¶**
40	**834244†**	**834258§**	**834272‡**	**1043304¶**
50	**834245†**	**834259§**	**834273‡**	**1043305¶**
60	**834246†**	**834260§**	**834274‡**	**1043306¶**
75	**834247†**	**834261§**	**834275‡**	**1043307¶**
100	**834248†**	**834262§**	**834276‡**	**1043308¶**
125	**834249†**	**834263§**	**834277‡**	**1043309¶**
125	**834250†**	**834264§**	**834278‡**	**1043310¶**
200	**834251†**	**834265§**	**834237‡**	**1043311¶**
250	**918537†**	**918538§**	**918539‡**	**1043312¶**

Time-Lag Refills for BA-100 and BA-200

5	**970695†**	**970709§**	**970723‡**	**1043674¶**
8	**970696†**	**970710§**	**970724‡**	**1043675¶**
10	**970697†**	**970711§**	**970725‡**	**1043676¶**
15	**970698†**	**970712§**	**970726‡**	**1043677¶**
20	**970699†**	**970713§**	**970727‡**	**1043678¶**
25	**970700†**	**970714§**	**970728‡**	**1043679¶**
30	**970701†**	**970715§**	**970729‡**	**1043680¶**
40	**970702†**	**970716§**	**970730‡**	**1043681¶**
50	**970703†**	**970717§**	**970731‡**	**1043682¶**
60	**970704†**	**970718§**	**970732‡**	**1043683¶**
75	**970705†**	**970719§**	**970733‡**	**1043684¶**
100	**970706†**	**970720§**	**970734‡**	**1043685¶**
125	**970707†**	**970721§**	**970735‡**	**1043686¶**
150	**970708†**	**970722§**	**970736‡**	**1043687¶**
200	**1014189†**	**1014190§**	**1014191‡**	**1043688¶**
Price Ea.	**†$4.50**	**§$5.50**	**‡$6.00**	**¶$7.00**

WESTINGHOUSE POWER TRANSFORMER FUSES

TYPE BA "DE-ION" POWER FUSE

Standard Refills for BA-400

Amps.	7.5 Kv. Cat. No.	15 Kv. Cat. No.	23 Kv. Cat. No.	34.5 Kv. Cat. No.
½ (PT)	**948934§**	**948935***	**948936¶**	**948937●**
5	**896804§**	**896821***	**896838¶**	**896855●**
8	**896805§**	**896822***	**896839¶**	**896856●**
10	**896806§**	**896823***	**896840¶**	**896857●**
15	**896807§**	**896824***	**896841¶**	**896858●**
20	**896808§**	**896825***	**896842¶**	**896859●**
25	**896809§**	**896826***	**896843¶**	**896860●**
30	**896810§**	**896827***	**896844¶**	**896861●**
40	**896811§**	**896828***	**896845¶**	**896862●**
50	**896812§**	**896829***	**896846¶**	**896863●**
60	**896813§**	**896830***	**896847¶**	**896864●**
75	**896814§**	**896831***	**896848¶**	**896865●**
100	**896815§**	**896832***	**896849¶**	**896866●**
125	**896793§**	**896794***	**896795¶**	**896796●**
150	**896816§**	**896833***	**896850¶**	**896867●**
200	**896817§**	**896834***	**896851¶**	**896868●**
250	**896818***	**896835¶**	**896852●**	**896869°**
300	**896819¶**	**896836⁺**	**896853#**	**896870★**
400	**896820⁺**	**896837●**	**896854▲**	**896871■**
500	**1043720▲**	....	....	....

Prices §$5.50 *$6.50 ¶$ 7.00 ⁺$ 7.50 ●$ 8.00
#$8.50 ▲$9.50 °$10.00 ★$11.00 ■$12.00

REFILLING TOOLS

Individual refilling tool included with each refill.

Combination refill tool and wrench also supplied without charge if requested with order:

BA-200..............Wrench, Catalog Number 841662
BA-400..............Wrench, Catalog Number 896737

FUSE CLIPS

To be ordered only if it is desired to mount BA fuse on present insulator posts and base. Includes a pair of clips, or clips and castings with necessary copper alloy mounting bolts. Castings for disconnecting type fuses are drilled for 3-inch bolt circle insulators.

Vented Type

Cat. No.	Type		Max. Ampere Rating	Price Each
948933	BA-100	Non-Discon.	100	$ 1.00
825725	BA-200	Disconnect.	200	9.00
896735	BA-400	Disconnect.	400	15.00
1105208	180°	Opening	200	9.00
1123929	180°	Opening	400	15.00
Condenser Type				
948933	BA-100	Non-Discon.	100	1.00
859205	BA-200	Disconnect.	200	9.00
896735	BA-400	Disconnect.	400	15.00

Current-limiting resistors for BA potential transformer fuses—various combinations of indoor and outdoor fuses and resistors are available. Indoor enclosing cabinets for BA "De-ion" Fuses.

Cat. No.	Price Each	Cat. No.	Price Each
1043368	**$45.00**	**1043370**	**$55.00**
1043369	**50.00**	**1043371**	**60.00**

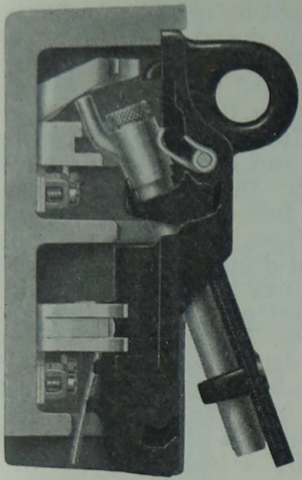
Hooksticks for disconnecting type BA fuse, without funnel or grounding cable:

Length Feet	Price Each	Length Feet	Price Each
6	**$ 8.00**	10	**$12.00**
8	**10.00**	12	**14.00**

Data and prices on other types and sizes on request.

WESTINGHOUSE PRIMARY FUSE CUTOUTS

TYPE ES—INDICATING



Cat. No. 940200 Showing Construction with Fuse Blown and Contacts Broken.

For rugged outdoor service. Supplied with adjustable hangers for mounting on any standard size cross arm. ES cutouts should be used where continuity of service is important. Indicating type is most useful on lines that are patrolled or wherever it is desired to have an indication that can be observed from a distance.

All live parts are totally enclosed, the cover is removable — safety features that make refilling possible without danger to the operator. In operation, both ends of fuse tube are removed from live contacts, eliminating leakage across the fuse tube with consequent failure. Cover can be removed and fuse tube refilled without use of tools. Housing is wet process porcelain. Properly applied, it will not cause radio interference.

50 Amperes, 5000 Volts

Cat. No.	Standard Bracket Cat. No.	Description	Approx. Shp. Wt. Lbs.*	Price Each
940200	**698487**	Cutout complete with fuse holder†	9	**$11.30**
940199	....	Fuse holder	½	**2.50**
940198	....	Cover complete without fuse holder	1¼	**5.25**
944982	....	Conversion unit complete‡	2½	**9.00**

50 Amperes, 7500/12500 Volts

Cat. No.	Standard Bracket Cat. No.	Description	Approx. Shp. Wt. Lbs.*	Price Each
1019420	**834195**	Cutout complete with fuse holder..	15	**14.25**
1019419	....	Fuse holder	1½	**3.00**
1019418	....	Cover complete without fuse holder	2	**7.35**
1043353	....	Conversion unit complete‡	3	**12.65**

*The weights given for the complete fuse cutouts include the brackets.

†The following styles of brackets may be used with this cutout: 698486, 698487, 751421, 834193 and 834198.

‡A conversion unit includes the upper and lower internal contact clips, cutout cover, fuse holder and the hinged pin, together with holding nut.

IMPORTANT—Please note that it will be necessary to specify a bracket style as a separate item in addition to the complete cutout. If no catalog number is specified on the order and no mention made of it, any standard bracket that is available will be supplied.

The catalog number of indicating type ES enclosed fuse cutouts includes the fuse support with fuse holder, but no mounting bracket or fuse link.

The price of indicating ES cutouts includes fuse supports, fuse holder and mounting brackets, but no fuse link.

WESTINGHOUSE PRIMARY FUSE CUTOUTS

TYPE ES SAFETY FIRST—NON-INDICATING

The application of these fuses is most advantageous on distribution transformer installations where reliable protection and continuous service are of paramount importance.

These new primary fuse cutouts are of the expulsion type, made in four sizes as follows: 1 to 50 amperes, 5000 volts; 1 to 50 amperes, 7500 volts—12,500 volts grounded Y systems; 5 to 100 amperes, 5000 volts; 5 to 100 amperes, 7500 volts—12,500 volts grounded Y systems.

List prices for the cutouts listed include fuse support, fuse holder, mounting bracket, but no fuse link. Order bracket by separate style number because it is not included in complete cutout style number. The style number and list prices of the refills include the refills only. 25 refills are packed in each carton. If possible, orders should be entered for multiples of these quantities.

Number includes fuse support with fuse holder but no mounting bracket or fuse link.

Cat. No.	Cap. Amps.	Max. Volts	Description	Ship. Wt. Lbs.	Price Each
834200	60	5000	Complete Cutout, with Fuse Holder†	8½	**$11.30**
591601	60	5000	Fuse Holder	½	**3.00**
591602	75	5000	Sw. Blade only....	¾	**2.00**
834201	60	7500	Complete Cutout, with Fuse Holder and Bracket 834195	14¾	**14.25**
591611	60	7500	Fuse Holder	¾	**3.00**
591612	75	7500	Sw. Blade only....	1	**2.00**
834202	150	5000	Complete Cutout, Bracket 834196 or 834199..	27	**25.00**
834203	150	7500	Complete Cutout, Bracket 834196 or 834199..	33	**30.00**
591631	150	5000 7500	Fuse Holder*	1½	**5.00**
591632	200	5000 7500	Sw. Blade only*..	3	**3.00**

*Fuse tube No. 591631 and switch blade No. 591632 are interchangeable in fuse cutouts Nos. 834202 and 834203.

†Use either bracket 698486, 698487, 751421, 834193 or 834198.

WESTINGHOUSE FUSE LINKS

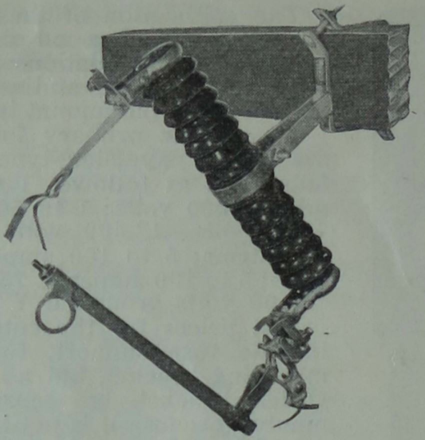
TYPE UT—UNIVERSAL

65% Rated		100% Rated		
Amps.	Cat. No.	Amps.	Cat. No.	Price Each
1	**896645**	1	**1105500**	**$0.50**
*2	**896646**	2	**1105501**	**.50**
3	**896647**	2	**1105501**	**.50**
5	**896648**	3	**1105502**	**.50**
......	....	5	**1105503**	**.50**
10	**896649**	7	**1105504**	**.50**
15	**896650**	10	**1105505**	**.50**
20	**896651**	15	**1105506**	**.50**
25	**896652**	20	**1105507**	**.50**
30	**896653**	25	**1105508**	**.50**
40	**896654**	30	**1105509**	**.50**
*50	**896655**	40	**1105510**	**.50**
60	**918752**	40	**1105510**	**.50**
75	**896657**	50	**1105511**	**.50**
100	**896658**	65	**1105512**	**.60**
......	....	85	**1105513**	**.60**
150	**918754**	100	**1105514**	**.60**

*No exact substitute. Use next higher rating.

WESTINGHOUSE OPEN FUSE CUTOUT

TYPE OA WITH DROPOUT FUSE HOLDER



50-Amp. 15000-Volt OA Cutout Starting to Drop to Open Position

A light-weight, strong, open-type dropout cutout, used principally on rural lines above 7500 volts and on those systems below 7500 volts where insulation on the open gap of an enclosed cutout is not sufficient to insure safety. Gives a clearly visible indication of its operation and inserts a very wide air gap in series with the line upon blowing. Protects distribution transformers against overload and short circuit. It should be applied on all systems from 7.5 to 15 kv., and below 7500 volts as stated above.

Fuse tube is hard vulcanized fibre and fine weave duck Micarta. Micarta is strong and shock-resistant, free from moisture absorption, not subject to warping and deterioration. Superior to paper base material. Orange pigmented insulating finish protects tube against ultra-violet rays of sun. Contact is maintained by a high conductivity cupaloy spring properly designed to give high pressure with large deflection. A high-strength, light-weight porcelain is used with the metal parts clamped on in such a way that the porcelain is kept in compression. The end clamps fit around ridges on the porcelain and cannot slide or move in any way to impair the contact pressure. Bracket clamps around full diameter of the porcelain, is of adjustable type, will fit any standard size cross-arm, is of hot-dipped galvanized steel.

Type OA cutouts also may be used as disconnect switches. Catalog numbers of complete disconnect switches are listed below. To convert a Type OA cutout in the field to a disconnect, order the disconnect blade only. Blade is copper alloy, rated at 200 amperes and fits into the same contacts as the fuse holder. Provided with a hookeye for opening and removing by a hookstick.

Best service from OA fuse cutouts is obtained by using Westinghouse Type UT Universal Tension Fuse Links. Universal cable type links of other manufacture can be used. Interrupting rating of 50-ampere cutouts is 1200 amperes and of the 100-ampere cutouts 2000 amperes. This applies to any method of mounting. Type OA cutouts available in mountings other than cross-arm. Same fuse holder is used and contact parts are fastened to N.E.M.A. standard or substandard insulators mounted on channel iron base.

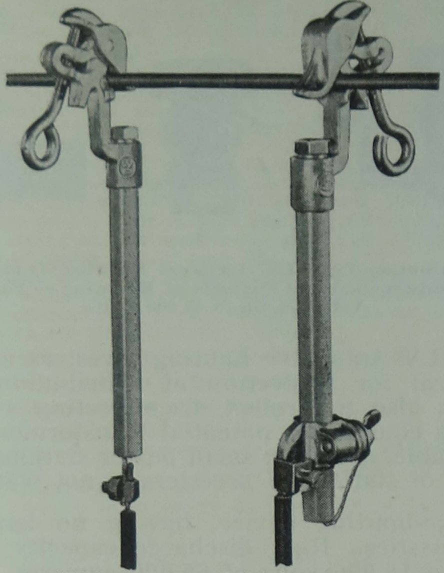
Cat. No.	Rated Current Amps.		Rated Voltage	Description	Weight, Lbs.		Price Each
	Cutout	Disconnect			Net	Ship.	
Type OA Cutouts for Cross Arm Mounting							
1014459	50	......	7500/12500*	Cutout complete	9	14	$19.00
1014460	100	......	7500/12500*	Cutout complete	9	14	19.00
1081050	......	200	7500/12500*	Disconnect switch complete	9	14	17.00
1014464	50	......	15000	Cutout complete	12	17	23.60
1014465	100	......	15000	Cutout complete	12	17	23.60
1081051	......	200	15000	Disconnect switch complete	12	17	21.60
Type OA Cutouts Mounted on Channel Base with Two NEMA Standard Insulators—(Heavy Duty)							
1081040	50	......	7500/12500*	Cutout complete	30	45	34.20
1081041	100	......	7500/12500*	Cutout complete	30	45	34.20
1081052	......	200	7500/12500*	Disconnect switch complete	30	45	32.20
1081042	50	......	15000	Cutout complete	48	65	45.60
1081043	100	......	15000	Cutout complete	48	65	45.60
1081053	......	200	15000	Disconnect switch complete	48	65	43.60
Type OA Cutouts Mounted on Channel Base with Two Substandard Insulators—(Medium Duty)							
1081044	50	......	7500/12500*	Cutout complete	24	38	20.00
1081045	100	......	7500/12500*	Cutout complete	24	38	20.00
1081054	......	200	7500/12500*	Disconnect switch complete	24	38	18.00
1081046	50	......	15000	Cutout complete	35	50	25.00
1081047	100	......	15000	Cutout complete	35	50	25.00
1081055	......	200	15000	Disconnect switch complete	35	50	23.00
Fuse Holders Only for All Above Cutouts							
1014457	50	......	7500/12500*	Fuse holder complete	1½	2½	8.00
1014458	100	......	7500/12500*	Fuse holder complete	1½	2½	8.00
1014462	50	......	15000	Fuse holder complete	1½	2½	9.00
1014463	100	......	15000	Fuse holder complete	1½	2½	9.00
Fuse Tube Only for All Above Cutouts—(Tube with No Metal Parts)							
1081069	50	......	7500/12500*	Fuse tube only	½	¾	3.00
1081070	100	......	7500/12500*	Fuse tube only	½	¾	3.00
1081071	50	......	15000	Fuse tube only	½	¾	4.00
1081072	100	......	15000	Fuse tube only	½	¾	4.00
Disconnect Blade Only for All Above Disconnect Switches							
1081048	......	200	7500/12500*	Disconnect blade only	1½	2½	6.00
1081049	......	200	15000	Disconnect blade only	1½	2½	7.00

*Grounded Y circuits.
Price includes cutout or disconnect switch complete.
Cat. No. of cutout includes complete cutout with mounting bracket and fuse holder but without fuse link.
Cat. No. of disconnect switch includes complete switch with mounting bracket and disconnect blade.

WESTINGHOUSE SUSPENSION TYPE CUTOUTS

TYPE HL

With Hot Line Clamps



Without Lower Terminal With Lower Terminal

30-Amp. Type HL Cutout 8000/13800 V. Grounded Y

Especially adaptable to rural lines. Widely used on 6900-volt single-line common-neutral circuits. Consists of a hot line clamp and fuse tube. The clamp is entirely of tin-coated non-ferrous metal which will not corrode. Cutouts for use on copper conductors have copper clamps; for use on aluminum conductors the clamps are plated with cadmium to prevent electrolytic action between the copper in the clamp and the aluminum wire.

Tube is threaded at upper end and screws into the fuse holder. It is made of hard vulcanized fibre treated with a baked-on, four-coat varnish finish that protects the tube from deterioration due to moisture and sunlight. Final coat is a pigmented varnish finish—orange colored.

There are two types. One type of cutout has a lower terminal arrangement to which is clamped both lower end of the fuse and the transformer lead. When a fuse opens, the transformer lead will not drop. The other design does not have a lower terminal arrangement. In this case, when a fuse opens, the transformer lead will drop clear. Both types should be removed from the line by a hook-stick for refilling.

The hot line clamp will clamp on any conductor from ⅛-inch diameter to ⅝-inch diameter. Lower terminal will clamp on any transformer lead up to No. 1 stranded cable. Will clamp stranded cable in tight if it has equivalent of 3/16-inch diameter without solder. Solder ends on smaller stranded wire. The interrupting capacity of the cutout is 1200 amperes at rated voltage. Use type UT universal cable links—or universal tension links of any manufacture.

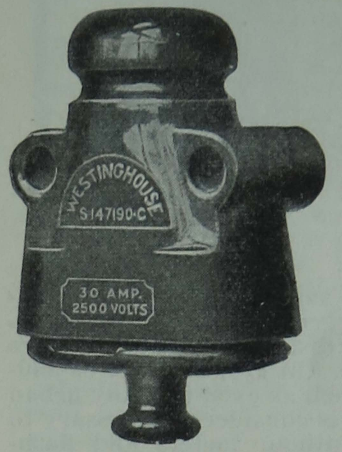
Voltage Rating—8000 V. Delta/13800 V. Grounded Y Line to Neutral

Cat. No.	Current Rating Amps.	For Suspension From:	Approx. Wt. Lbs. Net	Approx. Wt. Lbs. Shpg.	Price Each
		Cutout Complete Without Lower Terminal			
1019337	30	Copper Conductor	1	1¼	**$4.50**
1019338	30	Aluminum Conductor	1	1¼	**4.50**
		Cutout Complete With Lower Terminal			
1019590	30	Copper Conductor	1¼	1½	**5.00**
1019591	30	Aluminum Conductor	1¼	1½	**5.00**
1019583	Lower terminal only for use with numbers 1019590 and 1019591		¼	¼	**.50**

WESTINGHOUSE DISTRIBUTION TRANSFORMER CUTOUTS

Single Pole—Outdoor Mounting

PLUG TYPE



Cutout Complete No. 147190

These cutouts are designed for use on circuits not exceeding 30 amperes and 2500 volts and of moderate capacity. With the exception of the contact clips and mounting screws, all parts are of porcelain. They are entirely weatherproof and are readily mounted on a cross-arm or on any location convenient to the transformer by screws placed through the holes in the side of the cutout.

The cutout consists of two pieces: a receptacle, to which the line connections are made and which is permanently fastened to the cross arm or other support, and a plug, which carries the fuse. To refuse it is necessary to remove the plug from the receptacle, thus making the cutout safe in operation.

The contacts for the line wires are deeply recessed in the porcelain and well separated from each other, thus protecting them from the weather and accidental contact, and also from any possibility of arcing across the terminals. Connections to the contacts are made by inserting the wires through holes in the sides of the porcelain and securing them to the contact posts by means of set-screws.

The interrupting capacity of these cutouts when used one per wire, is approximately 1000 amperes at 2500 volts. No. 147190 has a glazed exterior finish of a dark brown color and is of the non-indicating type.

Non-Indicating Cutout Complete

Cat. No.	Maximum Amps.	Maximum Volts	Wt. Lb. Net*	Price Each
147190	30	2500	5¼	**$4.00**
		Receptacle Only		
241509	30	2500	4	**2.50**
		Plug Only		
241510	30	2500	1¼	**1.50**

*Shipping weight in quantities is approximately 10 per cent greater.

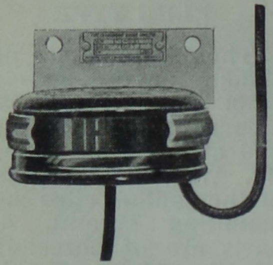
LINK FUSES

Fuses for use in plug-type transformer fuse blocks, No. 147190. Standard package quantity, 100.

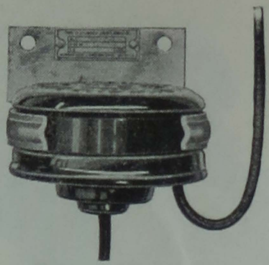
Cat. No.	Continuous Cap. Amps.	Price Per 100	Cat. No.	Continuous Cap. Amps.	Price Per 100
224172	1	**$25.00**	**224177**	15	**$25.00**
224173	2	**25.00**	**224178**	20	**25.00**
224174	3	**25.00**	**224179**	25	**25.00**
224175	5	**25.00**	**224180**	30	**25.00**
224176	10	**25.00**	....	----	-------

WESTINGHOUSE TYPE LV AUTOVALVE LIGHTNING ARRESTERS

For the Protection of A.C. Secondary Circuits Up to 750 Volts



500 Volt LV Arrester No. 671043



750 Volt LV Arrester No. 671044

These arresters give same protection to consumer's circuit as the larger sizes of type LV Autovalve arresters give to distribution transformers and connected apparatus. On 110, 220, 440 or 550-volt long service lines, such as exist in many urban communities, protection is considered necessary to prevent burnouts of watthour meters and flashovers in the consumer's house fixtures.

Two pieces make up porcelain casing. The smaller diameter porcelain holds the autovalve discharging element. Porous block is copper sprayed on both sides and painted on the edges with an insulating paint.

There is a series gap of copper electrodes separated by mica spacers on the line side of the block. Porcelain cap completely covers and envelopes this assembly. Exposed parts are insulated, complying with Underwriters' regulations.

A drop-out design of the low-voltage arrester is the first that has been offered operators with a wet-process porcelain housing, impervious to moisture and that features a circuit clearing device.

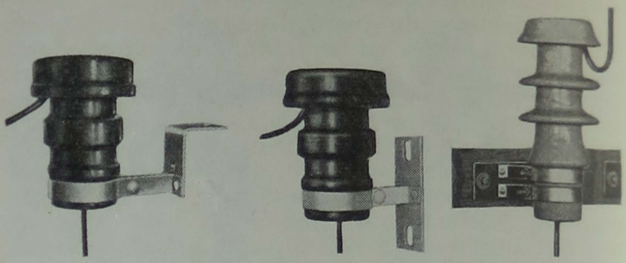
For Ungrounded Neutral Circuits

For single-phase line 2 arresters are required; for 3-phase line, 3 arresters are required.

Cat. No.	Circuit Voltage Phase to Phase		Std. Pkg.	With Bracket	
	Min.	Max.		Shpg. Wt. Lbs.	Price Each
825552*	0	240	24	3	**$3.00**
671043	151	500	24	3	**3.00**
671044	501	750	24	3	**3.00**

*Particularly adapted for electric range protection on circuits of 240 volts phase to phase solidly grounded. Arresters connected from phase to ground. This arrester is made up of mica-spaced carborundum discs similar to the standard secondary LV arrester. There is no series gap.

For Protection of Distribution Transformers For Voltages Up to 37,000



Distribution-Type LV Arresters Showing Compact Construction and Methods of Mounting — For Voltages Up to 37,000 Volts

Type LV Autovalve lighting arresters are used in general for protection of distribution transformers; also to protect disconnecting switches, metering equipment, potential transformers, insulators, cable, and even small power stations where expense of station SV arresters is not warranted.

Voltage-limiting device, having no impedance characteristics. High discharge capacity for arresters to 15,000 volts of 65,000 amperes.

Encased completely in wet-process porcelain which is impervious to moisture. This casing prevents radio interference and protects lineman from hazards of poor insulation.

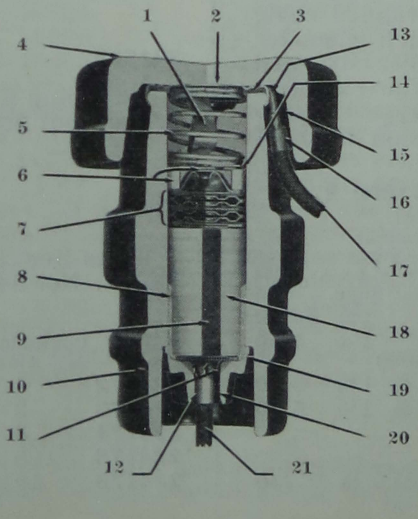
The new and improved 3, 6, and 9 kv. autovalve lightning arresters will withstand "hot" lighting, i.e., relatively low value 1000 amperes but may last a long time and may be repetitive. The new arrester handles "hot" and "cold" lightning equally well. This gives better protection against lightning strokes, greater safety for lines and equipment and fewer arrester replacements.

Increased protection for both arrester and the system comes through the new series gap which has two parts: newly-designed isolating gap with electrodes separated by a porcelain insulator, and quench gap separated by thin mica spacers.

Discharge current tested at 65,000-ampere crest shows the new arrester will withstand numerous discharges of this magnitude.

Offers a choice of various mounting-brackets and, in addition, offers a novel method of suspension from a line conductor or from an insulator.

1. Copper shunt.
2. Metal cap spun over head of porcelain housing compresses treated cork gasket (3) under metal cap to prevent moisture entrance.
3. Cork gasket.
4. Wet Process porcelain cap.
5. Steel spring.
6. Isolating gas consists of wet process porcelain spacer and metal electrodes. This gap isolates arrester from line, when not discharging lightning surges.
7. Quench gaps made up of metal electrodes separated by mica washers. This gap assembly interrupts power follow current.
8. Non-inflammable wax around blocks to cushion them against any shocks in shipment.
9. Body of porous block with white coating removed.
10. Wet Process housing. (Actual color is brown).



11. Soldered connection of ground lead to metal disc.
12. Thimble to prevent entrance of moisture through insulation of ground lead.
13. Soldered connection of line lead to metal cap.
14. Pre-ionizing tip on gap electrode which produces low and uniform impulse gap breakdown.
15. Sealing compound; melting point 80° C.
16. Thimble to prevent seepage of moisture through insulation of line lead.
17. Stranded line lead. Equivalent to No. 6 conductor.
18. New high current capacity porous block element with white insulating coating.
19. Thin porcelain section of dropout feature.
20. Sealing Compound.
21. Stranded ground lead, equivalent to No. 6 conductor.

WESTINGHOUSE AUTOVALVE LIGHTNING ARRESTERS

TYPE LV—FOR PROTECTION OF DISTRIBUTION TRANSFORMERS—FOR VOLTAGES UP TO 37,000

Ordering Information

To be sure the correct lighting arrester is applied to the system for which it is intended, your order or inquiry should contain the following information:

1—System conditions:
  a—Normal operating voltage.
  b—Maximum operating voltage.
  c—Whether all sources of fault current are ungrounded, solidly grounded, or grounded through resistance or rectance.
  d—Possible loss of neutral connection to ground on a system or part of system where arrester is located, the system having been regarded as having been grounded.
  e—Temporary over-voltage such as may occur due to apparatus or line regulation, generator overspeed following sudden loss of load, etc.
  f—Sustained over-voltage such as may occur on ungrounded circuits by induction from unbalanced parallel higher-voltage circuits in close proximity, or by contact with circuits of higher voltage.

2—Maximum line to ground voltage under fault or harmonies.

3—Whether system is 1, 2 or 3-phase.

4—Altitudes exceeding 6000 feet.

5—Physical conditions:
  a—Exposure to corrosive or explosive fumes, vapors or dusts.
  b—Exposure to salt air.
  c—Exposure to excessive moisture in damp places or climate.
  d—Exposure to fog.
  e—Exposure to abnormal vibration or shock.

Single-pole arresters from 3 kv. to 15 kv. inclusive are supplied with 18-inch line leads equivalent to number 6 conductor. Higher rated arresters have no line leads. Solderless connectors are supplied for line side of 20 kv. and 25 kv. arresters. For 30 to 73 kv. arresters, solderless connectors are furnished for both line and ground terminals. Stud bottom arresters are supplied with 18-inch line leads with an outside diameter equivalent to number 6 conductor. The stud bottom furnishes the ground terminal. All single-pole arresters up to 25 kv. inclusive are furnished with 18-inch ground leads equivalent to number 6 conductor. Where requested, U-bolt clamps can be supplied at no additional cost. Where more than one style of bracket can be used with an arrester, the customer has a choice of the brackets specified. When ordering by arrester catalog number only, arresters 3 to 15 kv. inclusive will be supplied with standard brackets at the price quoted.

Type LVS line-type arresters, for altitudes above 6000 feet, are listed below but not described herein. Complete information on request.

LV AUTOVALVE ARRESTERS FOR BRACKET MOUNTING — For Altitudes up to 6000 Feet

CIRCUIT VOLTAGE RATING Ungrounded Neutral System Phase to Phase		Solidly Grounded Neutral System Phase to Phase		Maximum Permissible Line to Ground Voltage Rating Cut-off Rms.	Standard Package Quantities	WEIGHT, LBS. Arrester without Bracket		ARRESTER CATALOG NO. With Both Line and Ground Leads and Drop-out Feature	With Line Lead and Ground Stud Without Drop-out Feature	Single-Pole Arrester List Each
Min.	Max.	Min.	Max.			Net	Shpg.			
751	3000	1000	5000	3000	12	8	9	1 105 473	1 123 816	$ 7.00
3001	6000	5001	9000	6000	12	12	14	1 105 474	1 123 817	12.00
6001	9000	9001	12800	9000	6	15	17	1 105 475	1 123 818	15.00
9001	12000	12801	15000	12000	6	18	20	881 550	945 133	23.00
12001	15000	15001	18000	15000	6	20	22	881 551	945 134	30.00

LV AUTOVALVE ARRESTERS FOR SUSPENSION MOUNTING — For Altitudes up to 6000 Feet

CIRCUIT VOLTAGE RATING Ungrounded Neutral System Phase to Phase		Solidly Grounded Neutral System Phase to Phase		Maximum Voltage Rating of Arrester Cut-off	WT., LBS. Arrester without Bracket or Suspension Clamp		Std. Pkg. Quan.	Bracket	Suspension Clamp	ARRESTER CATALOG NO. With Metal Cap 18-in. Ground Lead, Drop-out Feature	With Metal Cap Stud Bottom without Drop-out Feature	Single-Pole Arrester List Each
Min.	Max.	Min.	Max.		Net	Shpg.						
750	3000	1000	1000	3000	8	9	12	‡	1 151 914	1 151 589	1 151 592	$13.00
3001	6000	5001	9000	6000	12	14	12	‡	1 151 914	1 151 590	1 151 593	19.00
6001	9000	9001	12800	9000	15	17	6	‡	1 151 914	1 151 591	1 151 594	21.00
9001	12000	12001	15000	12000	18	20	6	§	1 151 914	1 019 520	None	29.00
12001	15000	15001	18000	15000	20	22	6	§	1 151 914	1 019 521	None	36.00

FOR ALTITUDES ABOVE 6000 FEET—USE TYPE LVS AUTOVALVE ARRESTERS (LINE-TYPE)

20 to 73 Kv., A-C.

Circuit Voltage Rating Phase to Phase Ungrounded Neutral System, Kv.	Solidly Grounded Neutral System, Kv.	Maximum Permissible Line to Ground Voltage Rating Cut-Off Rms.	For 6001-12000 Feet Altitude Single-Pole Arrester Cat. No.	Single-Pole Arrester List Each	For 12001-18000 Feet Altitude Single-Pole Arrester Cat. No.	Single-Pole Arrester List Each
15–20	18–25	20000	1 176 920	$144.00	1 176 928	$144.00
20–25	25–30	25000	1 176 921	174.00	1 176 929	174.00
25–30	30–37	30000	1 176 922	216.00	1 176 930	216.00
30–37	....	37000	1 176 923	260.00	1 176 931	260.00
....	37–50	40000	1 176 924	260.00	1 176 932	288.00
37–50	....	50000	1 176 925	332.00	1 176 933	348.00
....	50–73	60000	1 176 926	390.00	1 176 934	432.00
50–73	....	73000	1 176 927	462.00	1 176 935	522.00

The prices of the arresters include suspension clamp or bracket. Prices and data on request.

‡These arresters may also be mounted by brackets. Select choice of bracket Numbers: 445384, 445385, 445386, 524978, 537649.

§Can also be mounted by bracket Number 671046.

WESTINGHOUSE DIRECT CURRENT LIGHTNING ARRESTERS

TYPE MP LIGHTNING ARRESTERS

100 to 750 Volts D.C.

For Car, Line and Station Use

Provided for use on voltages from 100 to 750, direct current. They are especially adapted, however, for protection of direct current railway motors or power motors, and are arranged for mounting on either car, pole or wall. Contained in cast iron boxes, which are practically unbreakable.

They are light in weight, small in size, and convenient for handling and mounting. One-half of the casting can be easily removed, making access to the arrester easy for inspection or repairs. Waterproof against rain or splashing of water from car wheels.

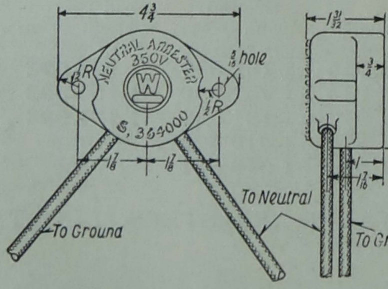
When the arrester is mounted on a pole or wall, or on top of a car, it should be fastened from the lug on the lower case, thus permitting the upper half of the case to be removed for inspection and repair. When the arrester is mounted underneath the car, it may be fastened by the lug on the upper half of the case and thus permit the lower half to be removed for inspection and repair.

Cat. No.	Volts	Std. Pkg.	Price Each
305883	100 to 400	12	**$15.25**
305884	400 to 750	12	**15.25**
247950	Carborundum Block	12	**5.00**

Approximate weight of complete arrester 7½ pounds net, 9 pounds boxed for shipment.

WESTINGHOUSE NEUTRAL LIGHTNING ARRESTERS

FOR DISTRIBUTION CIRCUITS



Designed for the protection of the neutral wire of distribution transformers which are installed on grounded neutral systems where the neutral wire is grounded at the power station or substations but not at the transformer stations.

This arrester consists essentially of a spark gap between non-arcing metal electrodes, one of which is a spherical section and the other a flat plate. The electrodes are separated by a porcelain spacer. The gap assembly is mounted in a brown glazed porcelain casing, which is provided with two $\frac{5}{16}$-inch mounting holes and equipped with leads of ample length for connection to the neutral wire and to the ground. Both leads are 18 inches long.

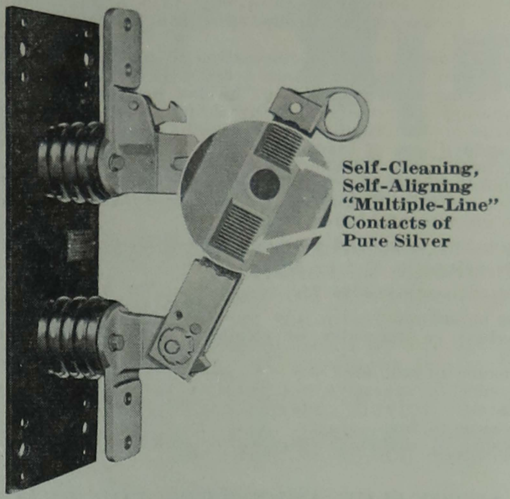
Cat. No.	Volts	Wt. Lbs. Net	Wt. Lbs. Shpg.	Std. Pkg.	Price Each
364000	0 to 350	¼	½	24	**$1.75**

WESTINGHOUSE DISCONNECTING SWITCHES

INDOOR—TYPE LC

With Multiple-Line Silver Contacts

5000 Volts, 200-6000 Amperes
7500 to 34000 Volts, 400-6000 Amperes



Type LC "Multiple-Line" (many fine, parallel ridges of solid silver crosswise on each switch blade) contact disconnecting switches have—

Permanent high pressure contact with little friction compared with tight flat surfaces obtained by resilient self-adjusting spring washers of Beryllium copper, factory adjusted and locked to provide correct tension as accurately predetermined by test.

Self-cleaning, self-aligning, self-adjusting silver contacts.

Ease of operation (3 to 5 times easier than conventional switches).

Specially designed pry-out leverage action of hook-eye with cam action in opening blades.

Freedom from maintenance.

Live parts of copper, bronze or non-ferrous alloys.

3-Position stop (90, 135, or 180 degrees) and safety lock at no extra cost.

Parallel blade construction which under short circuit increases the contact pressure because the magnetic action tends to pull the blades toward each other.

Jaw blocks and terminals of sold copper cast in one piece.

Coating of protective corrosion-resisting lacquer after being thoroughly cleaned in acid.

The 5000-volt switches rated 1200 amperes or less are supplied with Moldarta insulators and metal bases, or can be mounted directly on asbestos insulating bases. The 7500 and above volt switches can be furnished in any NEMA strength class wet process porcelain insulators.

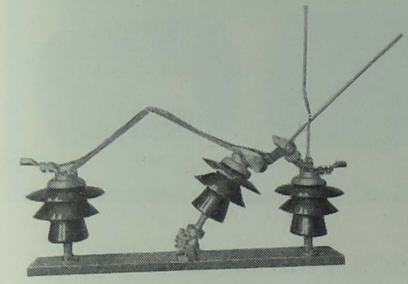
Flat sheet steel bases with minimum thickness of ¼-inch are standard on switches using NEMA Class A-2 insulators. On rear-connected switches rated over 600 amperes, the heavy flat steel bases are slotted. This prevents excessive heating from eddy currents set up by the magnetic field surrounding the rear-connected studs. Switches using NEMA Class B insulators are supplied with double angle iron bases for strength and rigidity, and to minimize the effect of uneven mounting surfaces.

Complete information, data and prices on request.

WESTINGHOUSE DISCONNECTING SWITCHES

OUTDOOR—TYPES RW-2 AND RW-4

Vertical-Break Tilting Insulator, Three-Pole* Single Throw, Gang Operated—RW-2 Horizontal Upright Mounting with Arcing Horns—RW-4 Vertical Base Mounting without Arcing Horns—Without Operating Mechanisms†


Type RW-2

RW-2 outdoor, air-break, remote control, gang-operated disconnecting switches are applicable as plain disconnects for isolating apparatus, opening all phases at one time. They are for interrupting small branch circuits, for breaking line charging current and transformer magnetizing current. Arcing horns are furnished with all upright mounted switches and may be discarded if not required.

All of these switches may be used for single and multiple-pole applications. They may be mounted upright, with or without arcing horns, or with bases vertical, without horns. Line contacts are full-floating, self-aligning, spring-pressure. Knuckle-action blade effectively breaks any corrosive seal or ice formation. Coiled buffer springs counterbalance weight of tilting insulators. Westinghouse NEMA standard 3-inch bolt circle insulators are used.

Amps.	RW-2—3 Insulators Per Pole Switch Cat. No.	Price Each Switch Less§ Mechanism	RW-2—2 Insulators Per Pole Switch Cat. No.	Price Each Switch Less§ Mechanism
		7500 Volts		
400	**799573**	**$187.00**	**1123852**	**$174.00**
600	**799574**	**212.00**	**1123853**	**196.00**
1200	**948942**	**334.00**	**1123854**	**299.00**
		15000 Volts		
400	**799575**	**223.00**	**1123855**	**205.00**
600	**799576**	**250.00**	**1123856**	**228.00**
1200	**948943**	**381.00**	**1123857**	**343.00**
		23000 Volts		
400	**799577**	**242.00**	**1123858**	**222.00**
600	**799578**	**271.00**	**1123859**	**247.00**
1200	**948944**	**410.00**	**1123860**	**368.00**
		33000-S Volts		
400	**1123847**	**287.64**	**1123861**	**254.76**
600	**1123848**	**325.64**	**1123862**	**286.76**
1200	**1123849**	**481.64**	**1123863**	**422.76**
		34500 Volts		
400	**698167**	**297.00**	**1123864**	**261.00**
600	**698168**	**335.00**	**1123865**	**293.00**
1200	**948945**	**491.00**	**1123866**	**429.00**

*For prices of other than 3-pole switches without mechanism, and double throw gang operated switches without mechanism, data on request.

†All prices are for 3-pole, single throw disconnecting switches without hand or motor operating mechanism, but include interphase shaft between pole units.

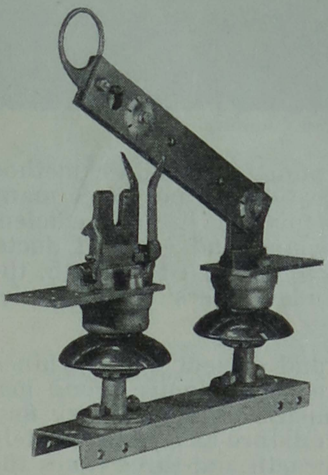
‡Vertical base mounting, **Type RW-4**, furnished at same prices as above. No reduction in price for omission of arcing horns.

§Either clamp or solder type plain copper terminals for conductor sizes up to and including 600MCM cable or ¾-inch I.P.S. tubing will be furnished without charge when specified with order. Prices of larger sizes on request.

WESTINGHOUSE DISCONNECTING SWITCHES

TYPE K OUTDOOR DISCONNECTING SWITCHES

Single-Pole for Inverted and Vertical Mounting


Type K—Single-Pole

Type K disconnecting switches are designed for outdoor service conditions but are also applicable to indoor service at increased voltage ratings. They are furnished in single-pole form for either inverted or vertical mounting.

Insulator assemblies meet N.E.M.A. requirements in all respects. Bases are galvanized steel channels of standard sections. Insulator center spacings, as mounted on bases conform with N.E.M.A. requirements.

Current carrying parts are all of hard drawn copper of high conductivity. Cast parts on the live side of the switch, not depended on to carry current, are of malleable iron galvanized, but nonferrous cast parts can be furnished if desired. Lock washers, cup washers, and springs are nonferrous. Other hardware is of galvanized steel, but Everdur or similar hardware can be furnished if desired.

Switch blades are of the split type and are treated with a penetrating, anti-friction alloy which definitely eliminates possibility of galling. Blade guides are furnished where necessary.

Latches are of a positive type that will not open on heavy short circuits, considerably above those required by N.E.M.A. A cam action is provided which breaks the corrosive seal and starts the blade to open easily. All latch parts are outside of the current carrying loop.

Due to the cam action, switches that have remained closed for a long period of time can be easily operated. Also, as previously stated, the switches can be mounted, at any angle and operated without difficulty.

Type K Single-Pole, Single-Throw with Latch

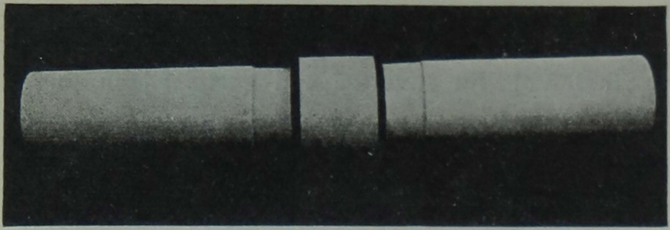
Max. Amp Rating at 60 Cycles 30° C Temp. Rise	Voltage	Approx. Wt. Lbs. Net	Cat. No. Inverted Mounting	Cat. No. Vertical Base Mounting	Price Each
400	7500	24	**698264**	**698288**	**$28.00**
400	15000	33	**698267**	**698291**	**33.50**
400	23000	44	**698272**	**698296**	**35.50**
400	33000-S	55	....	....	**45.42**
400	34500	60	**698276**	**698300**	**47.50**
600	46000	80	**698280**	**698304**	**65.00**

Type K Single-Pole, Double-Throw with Latches

400	7500	37	**698309**	**698333**	**42.00**
400	15000	50	**698312**	**698336**	**50.50**
400	23000	66	**698317**	**698340**	**54.00**
400	33000-S	66	....	....	**68.38**
400	34500	88	**698321**	**698344**	**71.50**
600	46000	112	**698325**	**712281**	**97.50**

Prices for higher ratings and selector switches on request.

J-M TRANSITE CONDUIT



Harrington Coupling

Because of the nature of material and the method of manufacture, Transite Conduit possesses many advantages which make for long life and efficient service in both underground and exposed ducts. When encased in concrete or buried in earth, the Conduit carries the Underwriters' Laboratories approval.

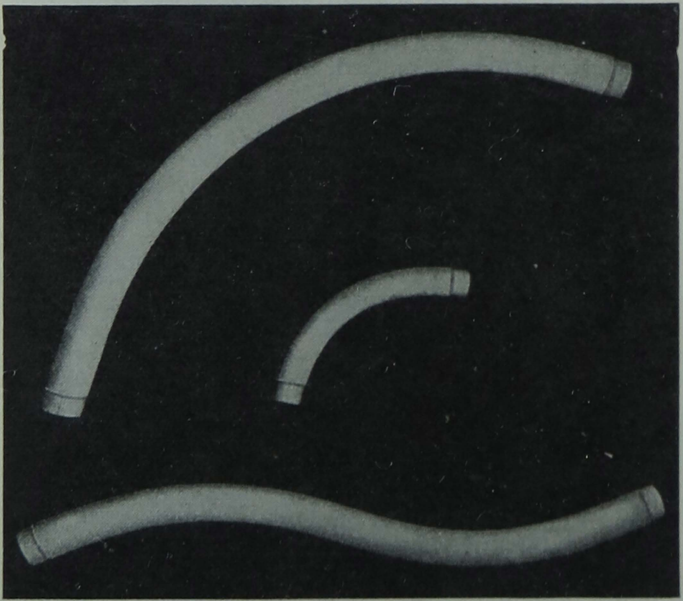
When asbestos fibre and cement are combined under heavy pressure, a surprisingly strong material is produced. Compared with ordinary first quality concrete, such a mixture has approximately five times the tensile strength and three times the compressive strength.

Transite Conduit lends itself to a wide range of service in the electrical field. It is equally suited to installation underground and overhead. For exposed ducts it can be used both within the building and outdoors. For underground service it does not require a protective concrete envelope.

A complete range of fittings and couplings permits the adaption of Transite Conduit to a wide variety of installation conditions.

The Harrington Coupling, used to join succeeding sections of duct, is machined in the interior to fit the standard taper to which the duct ends are machined.

A variety of bends, elbows and tees affords maximum flexibility in adapting the duct line to space limitations. These and other fittings such as caps, end bells and plugs provide maximum flexibility in laying out a system.

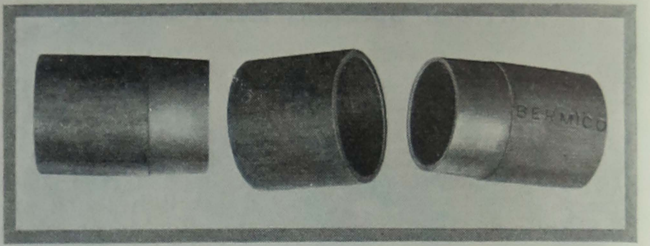


Transite Conduit Bends

Complete information and prices on request.

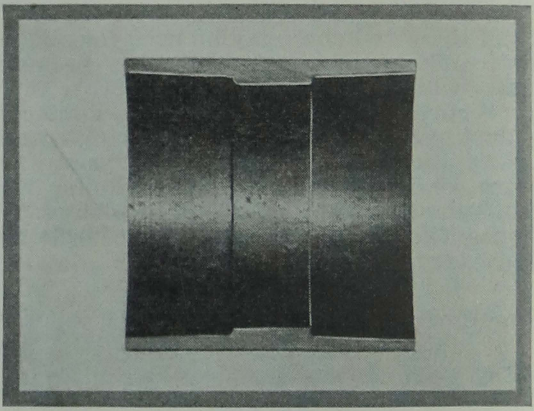
BERMICO FIBRE CONDUIT

A durable protective raceway for underground cables. Made with tough virgin wood fibre. Vacuum pressure impregnation process imparts maximum pitch content. Has high mechanical strength. Low water absorption. Acid resistant. Provides extra safety margins. Easy to install.



BERMICO COUPLINGS

One precision milled coupling furnished with each length of conduit. Popular Barrier Coupling saves time, costs—prevents splitting. Hall Cork Gasket Coupling insures watertight joint.



BENDS AND ELBOWS

Made from same strong, durable Bermico Fibre. Smooth inner surface permits easy pulling of cables around curves.

A COMPLETE LINE OF FITTINGS

End Bells	Adapters
Reducers	Plugs
Caps	Expansion Joints

BERMICO MULTIPLE CONDUIT

Bermico Fibre Conduit is available in multiples to save time and labor in handling. An exclusive Bermico development.

BERMICO "U" DUCT

A guard for vertical cables on poles. High dielectric strength.

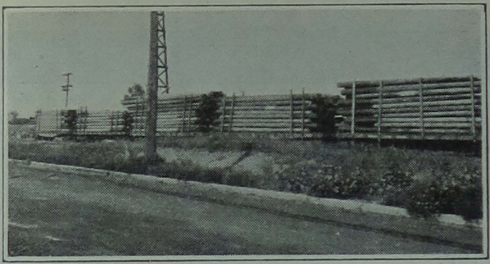
CONCRETE BRIDGES

For built-up duct systems. In all 2″ to 5″ conduit sizes.

BERMICO FIELD TOOLING MACHINE

Portable machine for accurate conduit milling in the field. Simple. No trained operator needed. Comes in strong compact carrying case.

WESTERN RED CEDAR POLES



OFFICIAL SPECIFICATIONS OF WESTERN RED CEDAR ASSOCIATION FOR WESTERN RED CEDAR POLES

1. **Live Timber:**
   All poles must be manufactured from live growing cedar timber.
2. **Manufacture:**
   All poles must be peeled, knots trimmed close and butts and tops sawed square.
3. **Variation in Length:**
   Poles may be 6 inches longer or 3 inches shorter than length specified.
4. **Knots:**
   Knots are not a defect, if sound, trimmed smoothly, and do not plainly impair the strength of the pole.
5. **Discoloration:**
   Discoloration is not a defect.
6. **Miscellaneous Defects:**
   No poles shall contain sap rot, woodpecker holes, plugged holes or evidence of having been eaten by ants.
7. **Rot:**
   Tops of poles must be free from rot. Butt rott in center, including small ring rot, shall not exceed 10 per cent of the area of the butt. Butt rot of a character which impairs the strength of the pole above the ground line is a defect.
8. **"Cat Faces":**
   Sound "cat faces" are not a defect if no part of the "cat face" shows on the upper one-fifth of the length of the pole or within 2 feet above or 1 foot below the ground line.
9. **Dead or Dry Streaks:**
   A sound dead or dry streak is not a defect if it does not cover more than 25 per cent of the surface of the pole at any one point.
10. **Minimum Measurements:**
    (a) The tops of all poles shall have a minimum circumference measurement as shown in Table No. 1.
    (b) The extreme butt of all poles shall have a minimum measurement as shown in Table No. 2.
    (c) Poles having a decided swell or flare at the butt shall have sufficiently larger measurement at butt to insure a reasonable measurement at the ground line.
11. **Short Kinks:**
    Short kinks are not permitted.
12. **Reverse Sweep:**
    Reverse sweep and two way sweep, meaning a sweep in two planes, is permitted, provided a straight line drawn from the center of pole at top to center of pole at ground line does not leave the pole at any point.
13. **One Way Sweep:**
    One way sweep is permitted provided it does not exceed maximum shown in Table No. 3.

WESTERN RED CEDAR POLES

(Continued)

14. **Method of Measuring Sweep:**
    That part of the pole below the ground line not to be taken into consideration. Tightly stretch a tape line from point at the ground line (see paragraph 15) on the side of the pole where the sweep is greatest to the upper surface at the top of the pole, and having so done, measure widest point from tape to surface of pole and if, for illustration, upon a 30 foot pole the widest point does not exceed 4 inches, this pole shall be accepted.
15. **Explanation of Term "Ground Line":**
    The term "Ground Line" as used in these specifications shall mean a point on the pole a distance of 4 feet on 20 foot, 5 feet on 25 foot and 30 foot, and 6 feet on 35 foot and longer poles from the extreme butt.

TABLE NO. 1
MINIMUM TOP MEASUREMENT

Top Designation	Circumference
4" Top	12"
5" Top	15"
6" Top	18½"
7" Top	22"
8" Top	25"
9" Top	28"
10" Top	31"

TABLE NO. 2

Poles 35 feet and longer shall have a minimum circumference measurement at extreme butt as follows:

Length	7" Top	8" Top	9" Top	10" Top
35′	33"	36"	39"	42"
40′	34"	37"	40"	44"
45′		39"	42"	45"
50′		41"	44"	47"
55′		42"	45"	48"
60′		44"	47"	50"
65′		45"	48"	51"
70′		47"	50"	53"
75′		48"	51"	54"
80′		50"	53"	56"
85′		51"	54"	57"
90′		52"	55"	58"

TABLE NO. 3

Length of Pole	Maximum Sweep Between Top and Ground Line	Length of Pole	Maximum Sweep Between Top and Ground Line
20′	3"	60′	9"
25′	3"	65′	10"
30′	4"	70′	10½"
35′	5"	75′	11"
40′	5½"	80′	12"
45′	6"	85′	13"
50′	7"	90′	14"
55′	8"		

TABLE NO. 4
(Table of Weights; and Number Required for Carload)

	Shpg. Wt. Lbs.	Number per Carload			Shpg. Wt. Lbs.	Number per Carload	
Size	Each	(Min.)	(Max.)	Size	Each	(Min.)	(Max.)
4"–20′	100	500	750	6"–35′	450	110	180
5"–20′	135	370	500	7"–35′	550	90	135
6"–20′	190	250	400	8"–35′	650	75	115
7"–20′	250	200	300	7"–40′	675	90	115
8"–20′	325	155	230	8"–40′	800	70	90
5"–25′	200	250	375	8"–45′	1000	80	125
6"–25′	250	200	300	8"–50′	1200	70	105
7"–25′	325	155	230	8"–55′	1400	60	90
8"–25′	400	125	190	8"–60′	1600	50	75
6"–30′	325	155	230	8"–65′	1850	45	65
7"–30′	400	125	190	8"–70′	2200	40	55
8"–30′	550	90	135	8"–75′	2600	30	50

Ten per cent over minimum required for carload lots should be included to cover variation in weights.

AMCRECO CREOSOTED SOUTHERN YELLOW PINE POLES

General

Creosoted southern yellow pine poles excell in the essential features of strength and permanence. Southern yellow pine is the strongest of all the pole woods and this great strength is maintained without deterioration by impregnation with pure creosote oil under high pressure. Creosoted pine poles which have been removed from lines after thirty years service and tested show no appreciable deterioration in strength.

The reasons for this maintained strength are simple and the factors governing them entirely under the control of a competent producer. Southern yellow pine is naturally strong and in addition, the cell structure is such as to permit impregnation of the sapwood and a portion of the heartwood with creosote oil. Creosote oil is toxic to wood, destroying fungi and termites, or white ants, which are the natural agents which destroy unprotected wood. Therefore, the impregnation of pine poles throughout their length with pure creosote oil renders them immune to decay and deterioration.

The high initial strength permits the use of smaller poles or longer spans. The fact that this strength is maintained throughout the full section of the pole without deterioration means that there will be no reduction in the factor of safety. In addition, creosoted southern yellow pine poles present a neat, uniform, finished appearance without the necessity of painting.

The question of conductivity of creosoted pine poles is sometimes raised in connection with their use. Experiments have demonstrated that the creosote treatment does not appreciably affect the electrical resistance of timber and the National Electric Light Association agrees that pole conductivity does not enter seriously into transmission or distribution line construction.

Manufacture

The production of creosoted pine poles starts with the selection and cutting of the timber. AmCreCo timber operations are conducted in the best stands of yellow pine in the south and from forests which are owned and controlled by the producers, which insures a permanent supply of proper timber. Care is taken in the selecting, felling, trimming and peeling of timber and in the movement of the poles to the plants. Poles are stored at the plants on yards which are drained and free from vegetation and are carefully piled on treated skids to prevent contamination and insure proper seasoning.

Poles are seasoned either naturally by air or artificially by steam to prepare the cells of the timber for even penetration and diffusion of creosote oil.

All framing should be done before treatment. Orders should give the number of gains for cross arms, distance from apex of roof to center of first gain, distance between the center of first and additional gains, the width and depth of gains, and the diameter of the through bolt hole required that this work may be done at the treating plant.

Prices

Prices will be furnished on request. Requests for prices should give quantity required, size of poles by length and class or minimum diameters at top and six feet from butt, pounds of oil final retention, necessary framing, and delivery requirements in respect to time and destinations.

STANDARD FIR CROSS ARMS

Yellow Douglas fir, straight-grained, 75 per cent heart, free from rot, rotten or unsound knots, worm holes or excessive wane, pitch pockets or checks or sound knots larger than one inch in diameter.

In ordering cross-arms specify just what is wanted, and if other than standard boring send sketch or blue print with order. Arms specially made are of no use for general stock and cannot be returned if mistake is made in ordering.

Any change required from standard spacing, pin or bolt holes as given must be specified.

3¼ x 4¼ Electric Light Arms

Pin Hole, 1 17/32 inches. Center bolt hole, ⅝ inch.

Lgth. Feet	No. of Pins	Pin Holes Spacings, Inches Center	Sides	Ends	Brace* Bolt Spacing	Wt. Lbs. Per 100
3	2	28	....	4	25	1062
4	4	16	12	4	28	1416
5	4	18	17	4	28	1770
6	4	22	21	4	32	2124
6	6	16	12	4	32	2124
8	6	18	17½	4	32	2832
8	8	16	12	4	32	2832
8½	10	16	9¾	4	32	3009
10	8	17½	15¾	4	42	3540
10	10	16	12	4	42	3540
10	12	16	9⅝	3⅞	42	3540

3 x 4¼ R.S.A. Arms

Pin Hole, 9/16 inch. Center bolt hole, 11/16 inch.

6	4	20	22	4	....	1980
8	8	19	17¼	4	....	2640
10	8	19	15½	4	....	3300
10	10	16	12⅜	2½	....	3300

2¾ x 3¾ Pony Telephone Arms

Pin Hole, 19/32 inch. Center bolt hole, ⅝ inch.

2	2	17	....	3½	....	540
2½	2	23	....	3½	....	675
3	2	29	....	3½	25	810
3½	4	16	9½	3½	28	945
5⅙	6	16	9¾	3½	28	1395
6⅚	8	16	9¾	3¾	28	1845
8½	10	16	9¾	4	28	2295
10	12	16	9⅝	3⅞	28	2700

3½ x 4½ N.E.L.A. Arms

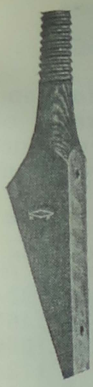
Pin Hole, 1 17/32 inches. Center bolt hole, 11/16 inch.

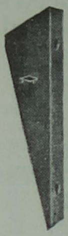
3⅙	2	30	....	4	28	1267
5 7/12	4	30	14½	4	38	2233
8	6	30	14½	4	38	3200
9⅙	8	30	12	4	38	3667

*All arms are bored with ⅜-inch brace bolt hole unless otherwise specified.

OAK BRACKETS AND POLE STEPS

Blue Diamond brackets and pole steps are carefully manufactured from seasoned stock. Brackets are furnished either painted or unpainted as desired.


Bracket


Step

Pole Brackets

Size Inches	Wt. Lbs. Per 1000
1½ x 2 x 10	500
1½ x 2 x 12	700
1½ x 2¼ x 12	800
1⅝ x 2 x 12	800
2 x 2¼ x 12	1000
2 x 2⅜ x 12	1100
2 x 2¾ x 12	1250
Pole Steps	
1½ x 2 x 7	500
1¾ x 2⅝ x 7	575

WOOD INSULATOR PINS

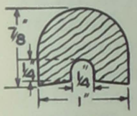
Blue Diamond pins are selected from best grade of locust or oak obtainable. Packed in bags stenciled and tagged showing contents. Minimum carload 80,000 1½ x 9-inch pins.

Size Inches	Wt. Lbs. Per 1000
1¼ x 8	325
1¼ x 9	400
1½ x 9	450
1½ x 12-1 top	600
1½ x 12-1⅜ top	650
1¾ x 12-1 top	1200
1¾ x 12-1⅜ top	1300

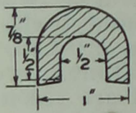
1½ x 9" Pin

Heavy Duty Pin

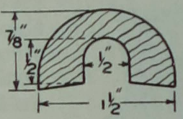
JOSLYN WOOD MOULDING



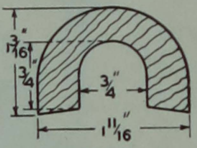
No. 1¼



No. 1



No. 2



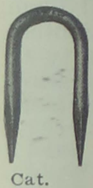
No. 3

Used to protect the ground wire on the side of the pole. Made of the highest grade material. Can be supplied plain, painted or creosoted. Put up in neat bundles bound with steel strapping.

Size No.	Length Feet	No. of Feet Per Bundle	Net Wt. Lbs. Per 1000 Feet
1¼	8	500	150
1	8	500	120
2	8	200	180
3	8	200	310

Prices on request.

HUBBARD-COPPERWELD STAPLES

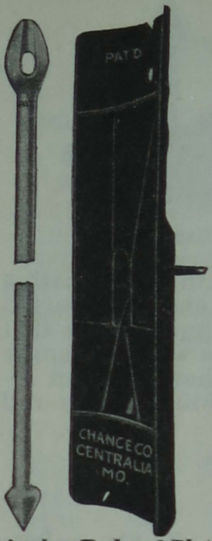


The larger sized staples are used for attaching ground wire moulding to pole and the smaller sizes are for insulated or bare ground wires. Furnished with rolled or cut points.

Cat. No.	Dime., Inches Hght.	Dime., Inches Spread	Diam.	Wt. Lbs. Per 100
7493	1¼	¼	.114	1
7494	1½	5/16	.144	1½
7495	1¾	⅜	.144	2
7496	2	½	.162	2¼
7497	3	¾	¼	7
7498	3	1½	¼	8½
7499	3¾	1¾	5/16	15
7521	2	1 1/16	3/16	4
7522	3	1	¼	8
7523	3½	1½	¼	10

CHANCE ANCHORS AND RODS

CHANCE NEVER-CREEP ANCHORS



Anchor Rod and Plate

Never-Creep anchors beat the dead-man. They are more easily installed and hold more. An ordinary 8 inch hole is all that is required for any size.

The Never-Creep anchors, like the dead-man, are practically unlimited in size. They are made to meet every anchoring requirement. No work is too light or strain too great for the Never-Creep.

They are the only anchors or method of anchoring whose holding power does not depend directly or indirectly upon the resistance of the filled in earth.

They cannot creep or skid because the anchor plate pulls entirely against the solid, undisturbed earth.

NEVER-CREEP PLATES ONLY

Cat. No.	Anchor Size	Rod Size	Area Sq. In.	Wt. Lbs. Per 100	Price Each
510	5x10	½	50	365	$2.30
615	6x15	½ ⅝	90	683	3.30
110	6x18 5/16	⅝ ¾	110	853	3.74
620	6x20	⅝ ¾	120	938	4.62
820	8x20	⅝ ¾	160	1260	6.92
825	8x25	¾	200	1680	8.80
830	8x30	¾	240	2420	9.90
835	8x35	¾ 1	280	3238	11.00
1040	10x40	1	400	4761	14.30

NEVER-CREEP THIMBLEYE RODS
(Single Guy)

Cat. No.	Diam. In.	Length Feet	No. in Bundle	Wt. Lbs. Per 100	Price Per 100
25	½	5	10	300	$128.60
26	½	6	10	450	142.80
27	½	7	10	500	157.60
56	⅝	6	10	680	200.80
57	⅝	7	10	750	226.40
58	⅝	8	10	830	245.60
36	¾	6	5	960	261.00
37	¾	7	5	1120	291.60
38	¾	8	5	1245	326.80
39	¾	9	5	1350	359.00
310	¾	10	5	1500	397.00
17	1	7	3	2150	511.20
18	1	8	3	2300	581.60
110	1	10	3	2600	726.40

NEVER-CREEP TWINEYE RODS
(Twin Guy)

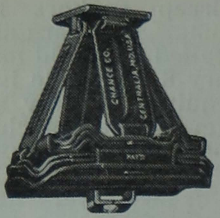
Cat. No.	Diam. In.	Length Feet	No. in Bundle	Wt. Lbs. Per 100	Price Per 100
360	¾	6	5	970	$277.40
370	¾	7	5	1130	309.40
380	¾	8	5	1255	342.80
390	¾	9	5	1460	402.20
170	1	7	3	2160	534.20
180	1	8	3	2310	629.80
1100	1	10	3	2895	762.60

NEVER-CREEP TRIPLEYE RODS
(Triple Guy)

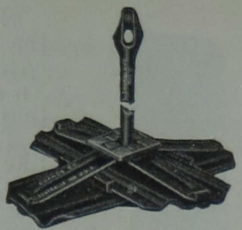
Cat. No.	Diam. In.	Length Feet	No. in Bundle	Wt. Lbs. Per 100	Price Per 100
5500	⅝	5	10	600	$188.00
5600	⅝	6	10	690	210.60
5700	⅝	7	10	765	234.60
5800	⅝	8	10	840	257.20
3600	¾	6	5	970	277.40
3700	¾	7	5	1130	309.40
3800	¾	8	5	1255	342.80
3900	¾	9	5	1460	402.20
1700	1	7	3	2160	534.20
1800	1	8	3	2310	629.80
11000	1	10	3	2895	762.60

CHANCE ANCHORS AND RODS

COPPER-ALLOY STEEL EXPANDING ANCHORS



Closed



Expanded

Made of copper-alloy steel high in rust resisting qualities. All parts are designed and constructed so as to withstand the severest punishment that may be encountered in installations without danger of injury. A super expanding anchor with nut retainer which prevents anchor sliding up on rod when installing.

Prices are for anchors less rods.

4-Way Anchors

Cat. No.	Size Anchor	Rod Size Inches	Area Sq. In.	Wt. Lbs. Per 100	Price Each
64	6-in.	½ ⅝ ¾	70	756	**$ 2.86**
845	8-in.	½ ⅝ ¾	90	1112	**3.30**
846	8-in.	½ ¾	110	1396	**3.74**
84	8-in.	⅝ ¾	125	1486	**4.62**
84-1	8-in.	⅝ ¾	132	1580	**5.06**
104	10-in.	¾ 1	174	2450	**6.92**
1044	10-in.	1	200	2581	**8.80**
124	12-in.	1 1¼	303	4240	**14.30**

2-Way Anchors

Cat. No.	Size Anchor	Rod Size Inches	Area Sq. In.	Wt. Lbs. Per 100	Price Each
52	5-in.	½ ⅝	35	406	**1.76**
62	6-in.	½ ⅝	53	495	**2.30**
82	8-in.	⅝ ¾	88	955	**3.20**
826	8-in.	⅝ ¾	99	1018	**3.74**

CHANCE CONE ANCHORS

The only cone anchor made with a nut retainer which keeps the cone from sliding up on rod when installing. Price is for anchors without rod.

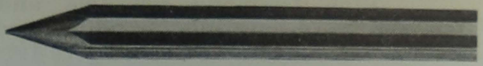
Cat. No.	Size, Inches Anchor	Size, Inches Rod	No. in Bundle	Wt. Lbs. Per 100	Price Each
6	6	½ ⅝	5	328	**$1.10**
8	8	⅝ ¾	5	647	**1.54**
10	10	⅝ ¾	3	996	**2.20**
12	12	¾ 1	1	1671	**3.08**
16	16	¾ 1	1	2856	**6.16**
19	19	1 1¼	1	4816	**9.90**
23	23	1 1¼	1	6413	**11.76**

PARAGON GROUND CONES

Furnished complete, filled or not filled with charcoal, as required, and with five feet of No. 4 soft copper leading-in wire welded to the grounds (no solder)—one continuous piece of solid copper to point of connection above ground removing all danger of destruction of connections from galvanic action.

Mfrs. No.	Length Feet	Gauge Copper	Price Each
3	1	21	**$4.50**
4	2	21	**5.50**

ANACONDA STAR GROUND RODS

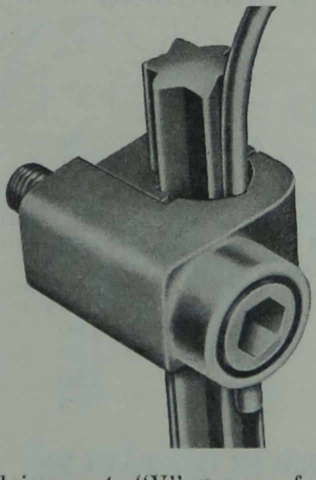


Solid copper, highly resistant to corrosion, and provides superior protection against galvanic or electrolytic action. The initial electrical conductivity can be relied on to be maintained throughout the life of the installation.

Cat. No.	Size, Lgth. In. Ft.	Shpg. Wt. Lbs. Per 100	Cat. No.	Size, Lgth. In. Ft.	Shpg. Wt. Lbs. Per 100
GR1895	⅜x 5	154	**GR18510**	¾x10*	1334
GR1896	⅜x 6	185	**GR18511**	¾x11*	1467
GR1897	⅜x 7	216	**GR18512**	¾x12*	1600
GR1898	⅜x 8	247	**GR18513**	¾x13*	1734
GR1885	½x 5	284	**GR18514**	¾x14*	1868
GR1886	½x 6	341	**GR18515**	¾x15*	2001
GR1887	½x 7	397	**GR18516**	¾x16*	2134
GR1888	½x 8	454	**GR1876**	1x 6*	1303
GR1889	½x 9	511	**GR1877**	1x 7*	1520
GR18810	½x10	568	**GR1878**	1x 8*	1738
GR1845	⅝x 5	430	**GR1879**	1x 9*	1955
GR1846	⅝x 6	516	**GR18710**	1x10*	2172
GR1847	⅝x 7	602	**GR18711**	1x11*	2389
GR1848	⅝x 8	688	**GR18712**	1x12*	2606
GR1849	⅝x 9	774	**GR18713**	1x13*	2824
GR18410	⅝x10	860	**GR18714**	1x14*	3041
GR18411	⅝x11*	946	**GR18715**	1x15*	3258
GR18412	⅝x12*	1032	**GR18716**	1x16*	3475
GR1855	¾x 5	667	**GR18717**	1x17*	3692
GR1856	¾x 6	800	**GR18718**	1x18*	3910
GR1857	¾x 7	933	**GR18719**	1x19*	4127
GR1858	¾x 8*	1067	**GR18720**	1x20*	4344
GR1859	¾x 9*	1200			

Standard packages: 10 ground rods. *5 ground rods.

EVERDUR GROUND WIRE CLAMPS



Standard type clamps for use with Star Ground Rods. Made of strong, tough, corrosion resistant Everdur metal, and are especially adaptable to all types of ground applications. They have the following features:

1. Everdur metal throughout, including bolt and washer. 2. Complete unit assembly—one piece to handle—no part to lose. 3. Single bolt, jaw type, permits installation of clamp after rod has been driven. 4. "V" groove for ground lead and form fit for Star Ground Rod, assure immovable contact regardless of wire size. 5. Unusual flexibility to wire sizes. 6. Rugged design. 7. A combination of back pressures which makes loosening from vibration impossible.

For Rod Size, In.	Catalog Numbers With Hex. Head Screw	Catalog Numbers With Safety Screw	Shpg. Wt. Lbs. Per 100
⅜	**GRC189**	....	....
½	**GRC188**	....	....
⅝	**GRC184**	**GRS184**	45
¾	**GRC185**	....	....
1	**GRC187**	....	....

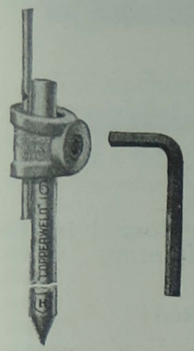
Clamps with Hexagonal Head Bolts are furnished unless order specifically calls for Safety Screw Clamps. Type, size and catalog number should be specified. Five wrenches are furnished with each lot of Safety Screw Type Clamps, one wrench with each lot of 30 clamps or less.

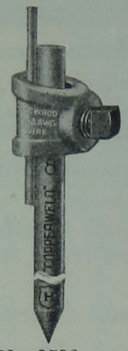
Hubbard Pole Line Hardware

Hot Galvanized

HUBBARD-COPPERWELD GROUND WIRE CLAMPS

Non-Ferrous Metal


No. 9492


No. 9592

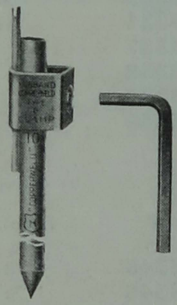
For attaching either solid or stranded grounding wires to ground rods, galvanized pipe, or sub-station switching arms. Clamps are made of high grade, corrosion-resisting non-ferrous metal.

Cat. No. Safety Screw Type	Cat. No. Square Head Bolt Type	Size Rod	Size Wire B&S Strand	Size Wire B&S Solid	Wt. Lbs. Per 100
9490	9590	⅜	......	4–17	25
9491	9591	½	......	4–14	30
9492	9592	⅝	⅜″ to 8		55
9493	9593	¾	⅜″ to 8		75
9495	9595	1	4/0 to 4		90
9496	....	1¼	4/0 to 4		120

HUBBARD-COPPERWELD TYPE B GROUND WIRE CLAMPS

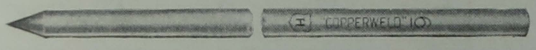
Non-Ferrous Metal

Type "B" Clamps are designed to allow the use of Hubbard-Copperweld Ground Rods and Clamps at a lower assembly cost. They provide a permanent high pressure connection, which is made quickly without the use of solder.



Cat. No. Safety Screw Type	Cat. No. Square Head Bolt Type	Rod Size Inches	Wire Size A.W.G.	Shpg. Wt. Lbs. Per 100
6490	6590	⅜	6 to 14	8
6491	6591	½	2 to 10	15
6492	6592	⅝	2 to 8	30
6493	6593	¾	2 to 8	50

HUBBARD-COPPERWELD GROUND RODS



Cat. No.	Diam. In.	Lgth. Ft.	Wt.Lb. Per100	Cat. No.	Diam. In.	Lgth. Ft.	Wt.Lb. Per100
9415	⅜	5	200	9447	¾	7	1090
9416	⅜	6	240	9448	¾	8	1250
9425	½	5	350	9449	¾	9	1400
9426	½	6	420	9450	¾	10	1550
9427	½	7	490	9452	¾	12	1850
9428	½	8	560	9465	1	5	1400
9430	½	10	700	9466	1	6	1690
9435	⅝	5	540	9467	1	7	1960
9436	⅝	6	650	9468	1	8	2250
9437	⅝	7	760	9469	1	9	2530
9438	⅝	8	870	9470	1	10	2810
9439	⅝	9	980	9472	1	12	3370
9440	⅝	10	1090	9474	1	15	4200
9445	¾	5	770	9479	1	20	5600
9446	¾	6	940	....	......	....	....

HUBBARD GROUND RODS

Made of stiff, high carbon open hearth steel, with long sharp points. Unwired rods are provided with holes through the upper ends for attaching grounding wires. These holes are ⅛-inch in diameter for ⅜-inch rods, $\frac{5}{32}$-inch for ½-inch rods, and $\frac{3}{16}$-inch for ⅝- and 1-inch rods, and are located one inch from ends of rods.

Without Copper Wire

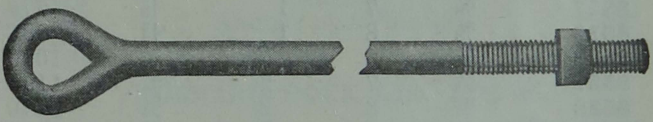
Cat. No.	Diam. In.	Lgth. Ft.	Wt.Lb. Per100	Cat. No.	Diam. In.	Lgth. Ft.	Wt.Lb. Per100
9555	⅜	5	185	9576	⅝	6	600
9556	⅜	6	223	9577	⅝	7	700
9565	½	5	300	9578	⅝	8	800
9566	½	6	360	9598	1	8	2133
9567	½	7	420				

With Copper Wire

No. 12 wire soldered to rod; free end, five inches long for attaching grounding wires running down the poles.

Cat. No.	Diam. In.	Lgth. Ft.	Wt.Lb. Per100	Cat. No.	Diam. In.	Lgth. Ft.	Wt.Lb. Per100
9505	½	5	320	9516	⅝	6	595
9506	½	6	395	9538	1	8	2133

HUBBARD OVALEYE ANCHOR RODS



The drop forged oval eye is furnished on all standard Hubbard rods. Rods ¾ inch diameter and under have 3½ inches rolled threads. The 1 and 1¼ inch rods have 3½ inches of cut threads. Rods with eye at each end can be furnished.

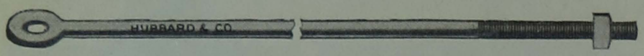
Cat. No.	Diam. In.	Length Ft.	Eyes, In. Width	Eyes, In. Length	Apx. Shpg. Wt. Lbs. 100 Pcs.
7405	½	5	¾	1	335
†7406	½	6	¾	1	402
7407	½	7	¾	1	470
7355	½	5	1¼	1½	350
7356	½	6	1¼	1½	405
7357	½	7	1¼	1½	510
7415	⅝	5	1½	2	540
*7416	⅝	6	1½	2	640
†7417	⅝	7	1½	2	740
*7418	⅝	8	1½	2	840
7426	¾	6	1½	2	910
7427	¾	7	1½	2	1060
†*7428	¾	8	1½	2	1210
7429	¾	9	1½	2	1360
*7430	¾	10	1½	2	1510
7438	1	8	1½	2	2270
*7440	1	10	1½	2	2760
*7442	1	12	1½	2	3290
7444	1¼	10	1¾	2¼	4400

*E. E. I. (N.E.L.A.) Standard. †A.R.A. Standard.

Hubbard Pole Line Hardware

Hot Galvanized

HUBBARD GUYEYE ANCHOR RODS



Designed to eliminate the guy thimble. Combines the drop forged oval eye and guy thimble and should be used exclusively with guy strand, as it is well rounded with a generous radius so that the strand will not be sharply kinked.

The two eye type of Guyeye is used when 2 guy wires are to be tied in at the same point.

Cat. No.	Diam. In.	Length Ft.	Eyes, In. Width	Eyes, In. Length	Wt. Lbs. Per 100
8405	½	5	½	¾	370
8406	½	6	½	¾	440
†8407	½	7	½	¾	500
8415	⅝	5	½	¾	550
8416	⅝	6	½	¾	654
8417	⅝	7	½	¾	758
†8418	⅝	8	½	¾	862
8426	¾	6	⅝	⅞	960
8427	¾	7	⅝	⅞	1154
8428	¾	8	⅝	⅞	1400
†8429	¾	9	⅝	⅞	1460
8430	¾	10	⅝	⅞	1665
8438	1	8	¾	1 3/16	2300
8439	1	9	¾	1 3/16	2550
†8440	1	10	¾	1 3/16	2800
8442	1	12	¾	1 3/16	3200

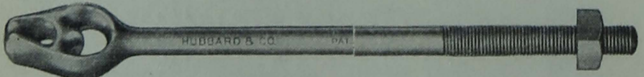
†A.T.&T. Co. Standard.

HUBBARD TU-GUYEYE ANCHOR RODS

Cat. No.	Diam. In.	Length Ft.	Eyes, In. Width	Eyes, In. Length	Wt. Lbs. Per 100
8515	⅝	5	1	15/16	570
8516	⅝	6	1	15/16	674
8517	⅝	7	1	15/16	778
8518	⅝	8	1	15/16	882
8526	¾	6	⅞	¾	1000
8527	¾	7	⅞	¾	1195
8528	¾	8	⅞	¾	1440
†8529	¾	9	⅞	¾	1500
8530	¾	10	⅞	¾	1705
8538	1	8	1	¾	2400
8539	1	9	1	¾	2625
†8540	1	10	1	¾	2860
8540½	1	12	1	¾	3275
†8541	1¼	10	1⅛	⅞	4400
8542	1¼	12	1⅛	⅞	5230

†A.T.&T. Co. standard.

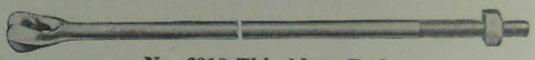
HUBBARD 3-GUYEYE ANCHOR RODS



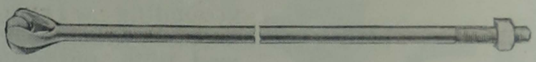
Cat. No.	Diam. In.	Length Ft.	Eyes, In. Width	Eyes, In. Length	Wt. Lbs. Per 100
8556	¾	6	9/16	1	990
8557	¾	7	9/16	1	1150
8558	¾	8	9/16	1	1310
8559	¾	9	9/16	1	1470
8560	¾	10	11/16	1⅛	1630
8567	1	7	11/16	1⅛	2100
8568	1	8	11/16	1⅛	2380
8569	1	9	11/16	1⅛	2660
8570	1	10	11/16	1⅛	2940
8572	1	12	11/16	1⅛	3500
8574	1¼	10	11/16	1⅛	4620
8575	1¼	12	11/16	1⅛	5890

CHANCE THIMBLEYE AND TWINEYE THREADED ANCHOR RODS

(Licensed Under Patents of A. B. Chance)



No. 6318 Thimbleye Rod



No. 6358 Twineye Rod

Have a perfectly formed thimble forged in the eye that keeps the strand from flattening.

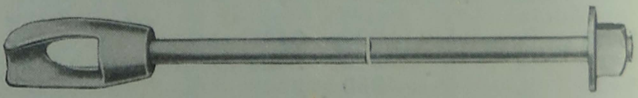
Thimbleye Rods (Threaded)

Cat. No.	Diam. In.	Length Ft.	Eyes, In. Width	Eyes, In. Length	Wt. Lbs. Per 100
6305	½	5	½	9/16	380
6306	½	6	½	9/16	423
6307	½	7	½	9/16	466
6315	⅝	5	9/16	11/16	575
6316	⅝	6	9/16	11/16	680
6317	⅝	7	9/16	11/16	795
6318	⅝	8	9/16	11/16	900
6326	¾	6	11/16	13/16	975
6327	¾	7	11/16	13/16	1110
6328	¾	8	11/16	13/16	1280
6329	¾	9	11/16	13/16	1465
6331	¾	10	11/16	13/16	1650
6337	1	7	15/16	1⅛	1909
6338	1	8	15/16	1⅛	2217
6339	1	9	15/16	1⅛	2525
6340	1	10	15/16	1⅛	2833

Twineye Rods (Threaded)

Cat. No.	Diam. In.	Length Ft.	Eyes, In. Width	Eyes, In. Length	Wt. Lbs. Per 100
6345	⅝	5	½	15/16	570
6346	⅝	6	½	15/16	674
6347	⅝	7	½	15/16	778
6348	⅝	8	½	15/16	882
6356	¾	6	½	1	985
6357	¾	7	½	1	1130
6358	¾	8	½	1	1280
6359	¾	9	½	1	1460
6360	¾	10	½	1	1625
6367	1	7	⅝	1 3/16	1943
6368	1	8	⅝	1 3/16	2310
6369	1	9	⅝	1 3/16	2590
6370	1	10	⅝	1 3/16	2867

HUBBARD COPPERWELD ANCHOR RODS

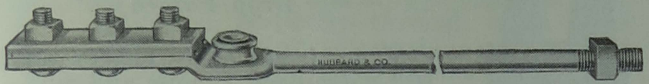


Cat. No.	Diam. In.	Lgth. Ft.	Lgth. Thrd. Inches	Eye, In. Wdth.	Eye, In. Lgth.	Wt. Lbs. Per 100
9417	½	6	1¼	11/16	15/16	460
9418	½	7	1¼	11/16	15/16	515
9419	⅝	6	1¾	11/16	15/16	690
9420	⅝	7	1¾	11/16	15/16	780
9421	⅝	8	1¾	11/16	15/16	870
9421½	¾	6	2	11/16	15/16	975
9422	¾	7	2	11/16	15/16	1105
9423	¾	8	2	11/16	15/16	1235
9424	¾	9	2	11/16	15/16	1365

Hubbard Pole Line Hardware

Hot Galvanized

HUBBARD GOULD CLAMP ANCHOR RODS



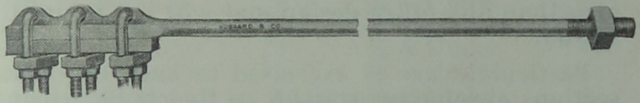
No. 6416

This Anchor Rod combines an anchor rod, guy clamp and guy thimble all in one. The Clamp body and snubbing post are drop forged and will develop the full strength of the rod.

Cat. No.	Diam. Rod In.	Lgth. Ft.*	Dimens. Clamp, In. Wdth.	Lgth.	Hght.	Wt. Lbs. Per 100
6405	½	5	2	6	2⅛	810
6406	½	6	2	6	2⅛	860
6407	½	7	2	6	2⅛	910
6408	½	8	2	6	2⅛	960
6415	⅝	5	2	6	2⅛	900
6416	⅝	6	2	6	2⅛	1000
6417	⅝	7	2	6	2⅛	1100
6418	⅝	8	2	6	2⅛	1200
6426	¾	6	2	6	2⅛	1330
6427	¾	7	2	6	2⅛	1465
6428	¾	8	2	6	2⅛	1635
6429	¾	9	2	6	2⅛	1766
6430	¾	10	2	6	2⅛	1935

*Length to center of sheave.

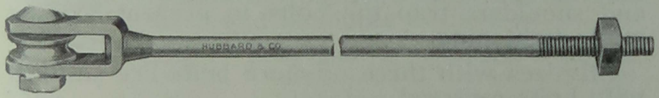
HUBBARD HEAVY CLAMP ANCHOR RODS



For extra heavy strains where high strength strand is used. It is not necessary to bend the guy wire around an eye to clamp it, which is an awkward and difficult task.

Cat. No.	Diam. Rod, In.	Overall Lgth. Ft.	Dimen. Clamp, In. Wdth.	Lgth.	Hght.	Wt. Lbs. Per 100
7468	1	8	3¼	8¾	5⅞	2900
7470	1	10	3¼	8¾	5⅞	3500
7472	1	12	3¼	8¾	5⅞	4100

HUBBARD SNUBBEREYE ANCHOR RODS

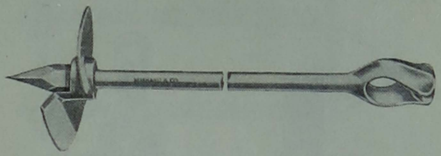


Snubbereye Anchor Rods enable strand to be pulled up without scraping or injuring galvanizing either on the strand or sheave wheel. Both single and double types have a locking device for the sheave after the proper tension is reched.

Cat. No. Single Snubbereye	Cat. No. Double Snubbereye	Diam. Rod In.	Lgth. Ft.*	Wdth. Snubbereye	Wt. Lbs., Per 100 Single Snub.	Wt. Lbs., Per 100 Double Snub.
6955	-------	½	5	½	550	-------
6956	-------	½	6	½	620	-------
6957	-------	½	7	½	685	-------
6965	**5965**	⅝	5	½	740	840
6966	**5966**	⅝	6	½	844	944
6967	**5967**	⅝	7	½	948	1048
6968	**5968**	⅝	8	½	1052	1152
6976	**5976**	¾	6	½	1190	1290
6977	**5977**	¾	7	½	1350	1450
6978	**5978**	¾	8	½	1510	1610
6979	**5979**	¾	9	½	1670	1770
6980	**5980**	¾	10	½	1830	1930
6988	**5988**	1	8	⅝	2630	2730
6990	**5990**	1	10	⅝	3190	3290
6992	**5992**	1	12	⅝	2750	3850

*Length to center of sheave.

HUBBARD STEEL WING ANCHORS

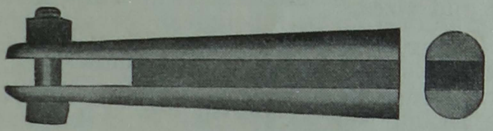


Improved screw type. Large bearing surface against undisturbed earth prevents creeping. Drop forged from special high carbon steel and completely hot galvanized. Large thimbleye to accommodate bar.

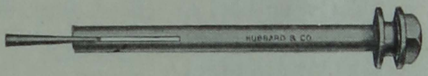
Cat. No.	Diam. of Wing, In.	Size Rod In.	Wt. Lbs. Per 100
7524	4	¾x54	800
7526	6	¾x66	1040
7527	7	1 x66	1750
7528	8	1 x66	1860
7530	10	1¼x66	2900
7550	10	1¼x96	3690

To obtain Ovaleye — add A to Cat. No.

HUBBARD ROCK GUY ANCHOR



No. 7545

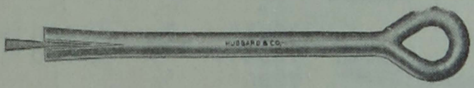


No. 7544

Cat. No.	Description	Wt. Lb. Per 100
†7545	Anchor	496
†7544	Anchor and Thimble	400

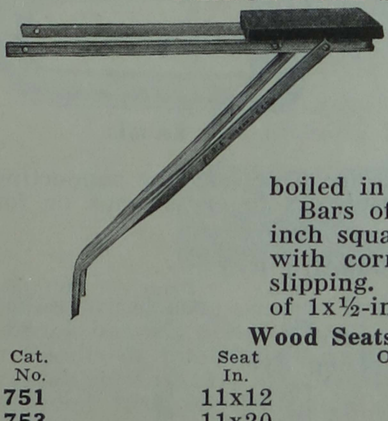
†N. E. L. A. Standard.

HUBBARD ROCK GUY BOLTS



Cat. No.	Description	Wt. Lb. Per 100
7546	Bolt	600
7547	Bolt with Wedge..	600

PEIRCE POLE SEATS



The frames and braces of wood seats are of 1x½-inch channel steel. Wood seat of 1⅛-inch cypress, boiled in creosote.

Bars of steel seats are ⅜-inch square steel and placed with corners up to prevent slipping. Frames and braces of 1x½-inch channel steel.

Wood Seats

Cat. No.	Seat In.	Over All In.	Wt. Lbs. Per 100
751	11x12	31	1260
753	11x20	31	1400

Steel Seats

Cat. No.	Seat In.	Over All In.	Wt. Lbs. Per 100
755	12x13⅞	28	1400
757	12x11	32	1260

*E.E.I. (N.E.L.A.) standard sizes.

Hubbard Pole Line Hardware

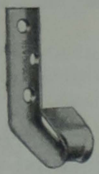
Hot Galvanized

HUBBARD GUY ATTACHMENTS

No. 6001

No. 6004

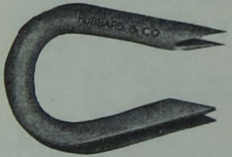
No. 6003


No. 7587

A great variety of Guy Hooks and Storm Guy Attachments are necessary to meet the needs of various operating companies, both power and communication. Hubbard and Company's complete line includes a range of sizes in light and heavy regular guy hooks, cross arm guy loops and the "closed" type storm guy attachments in steel and certified malleable iron. The storm types are generally mounted back to back. All are constructed with rounded wire grooves to give the strand a safe bending radius. See table and illustrations for detailed descriptions of the various types and sizes.

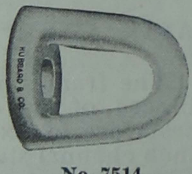
Cat. No.	Material and Length Inches	Hole Diams., Inches Upper	Hole Diams., Inches Lower	Ship. Wt. Lbs. Per 100
	Storm			
†6001	¼x1½x7 Steel	9/16	13/16	117
6002	¼x2 x7¼ Steel	9/16	13/16	195
6003	5½ Overall M. I.	9/16	11/16	100
	Cross Arm			
6004	¼x1½x4⅛ Steel	....	11/16	86
6005	¼x2 x4⅛ Steel	....	13/16	137
	Angle			
7587	7/16x1¾x6¾ Steel	9/16 (2)	11/16	154

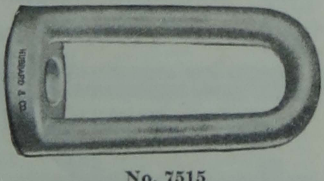
HUBBARD GUY THIMBLES



Cat. No.	Size Strand In.	Size Guy Rod In.	Wt. Lbs. Per 100
7593*	⅜	½ and ⅝	10
7594*†	½	⅝ and ¾	22
7595*†	⅝	1	45

HUBBARD BOLT EYES

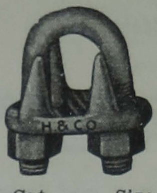

No. 7514


No. 7515

Used where eyes are necessary for supporting suspension type insulators to cross arms or for dead ending lines.

Cat. No.	Length In.	Width In.	Diam. Bolt, In.	Wt. Lbs. Per 100
		Standard Eye		
7514	2⅝	1⅛	⅝	83
		Long Eye		
7515	4½	1⅜	⅝	103
7516	4½	1⅜	¾	100
7517	3½	1 5/16	⅝	90
7518	3½	1 5/16	¾	87

*E. E. I. (N. E. L. A.) Standard. †A. T. & T. Co. Standard.



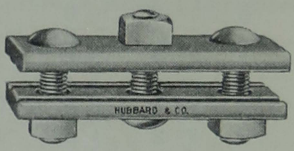
HUBBARD WIRE ROPE CLIPS

Drop Forged

Made from open hearth steel. Hot galvanized U-bolts and nuts.

Cat. No.	Size of Strand	Wt. Lbs. Per 100	Cat. No.	Size of Strand	Wt. Lbs. Per 100
7480	¼	25	7485	⅝	87
7481	5/16	25	7486	¾	175
7482*	⅜	37	7487	⅞	200
7483	7/16	37	7488	1	300
7484*	½	75	-------	-----	-----

HUBBARD GUY CLAMPS



No. 7461

Hubbard Guy Clamps are hot rolled to a ⅜ inch thickness from steel plates. The clamping principle employed is the straight, parallel groove, smoothly galvanized, which offers more holding area than any other design and will not injure the strand.

Particular care is exercised to keep the clamp sections absolutely straight, so that bolts will not be drawn tight on an area which may be warped out of contact with the strand with consequent loss of holding power. Grooves are accurately spaced and the holes carefully centered so that the two halves line up perfectly. Sections are cleanly sheared so that the groove ends cannot cut or injure the strand.

Clamp Bolts are made of special steel to prevent elongation and to eliminate stripping. Heads are made large to provide maximum clamping area and shoulders trap the bolts to prevent turning while tightening.

All sizes with three or more bolts are shipped with bolts reversed.

HEAVY TYPE—⅝-Inch Clamp Bolts

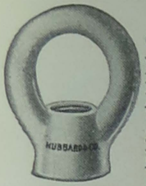
Cat. No.	Number of Bolts	Dimensions—Inches Length	Dimensions—Inches Width	Dimensions—Inches Strand Size—Inches	Ship. Wt. Lbs. Per 100
7460	3	6	2⅛	⅜ to ⅝	397
*7461	3	6	1 21/32	5/16 to ½	284
7462	2	4	1 21/32	5/16 to ½	186
7464	4	8	1 21/32	5/16 to ½	388
		MEDIUM TYPE—½-Inch Clamp Bolts			
7447	1	1 7/16	1 9/16	¼ to 7/16	64
*7448	2	3⅜	1 9/16	¼ to 7/16	138
7449	3	4	1 9/16	¼ to 7/16	188
*7450	3	6	1 9/16	¼ to 7/16	224
		LIGHT TYPE—½-Inch Clamp Bolts			
7401	1	1¾	1 9/32	⅛ to ¼	48
7402	2	3¾	1 9/32	⅛ to ¼	106
7403	3	5¾	1 9/32	⅛ to ¼	160
7404	4	7¾	1 9/32	⅛ to ¼	210
7445	1	1¼	1¼	⅛ to 7/32	30

*E. E. I. (N. E. L. A.) Standard.

Hubbard Pole Line Hardware

Hot Galvanized

HUBBARD DROP FORGED EYE NUTS

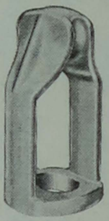

No. 7501

Designed for use on the threaded ends of ½, ⅝ and ¾ inch machine bolts passed vertically through cross arms for attaching suspension type insulators. By their use a second eye may be added to the ½, ⅝ and ¾ inch eye bolts, which permits the attachment of a back guy to the same bolt that supports the insulators to dead ended wire.

Cat. No.	Diam. Bolt, In.	Eye Dimens. Inches	Wt. Lbs. Per 100	Cat. No.	Diam. Bolt, In.	Eye Dimens. Inches	Wt. Lbs. Per 100
7500	½	1⅛x1⅛	49	**7504**	⅜	1⅛x1⅛	40
7501	⅝	1⅛x1⅛	46	**7505**	½	1⅛x1⅛	40
7502*	⅝	1½x1 11/16	60	**7506**	⅝	1⅛x1⅛	40
7503	¾	1½x1 11/16	56	-------	----	------------	----

‡HUBBARD-CHANCE BOLT EYES

The base has hole for receiving thru bolts 1/16-inch larger than diameter of bolt. Guying to thimbleye eliminates use of pole shims, guy hooks, and lag screws and saves the length of the strand necessary for serving around the pole.


No. 7520

No. 1101

Cat. No.	Type	Bolt Size Inches	Strand Size Inches	Wt. Lbs. Per 100
7519	Straight	⅝	½ & Under	125
7520	Straight	¾	½ & Under	130
7563	Twineye	⅝	½ & Under	140
7564	Twineye	¾	½ & Under	140
1100	Angle	⅝	½ & Under	130
1101	Angle	¾	½ & Under	150
1102	Angle	1	⅝ & Under	160

HUBBARD THIMBLEYE NUTS

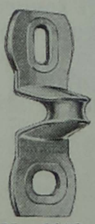
No. 7510

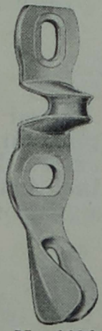
Designed exclusively for use with guy strand. It eliminates the trickey guy thimble. The section of the Thimbleye which supports the strand is made well rounded with a generous radius so that strand will not be sharply kinked. Adaptable for strand or wire up to and including ⅝-inch.

Cat. No.	Diam. Bolt	Size Eye	Length Overall	Wt. Lbs. Per 100
7509	½	⅞x1½	3⅛	118
7510	⅝	⅞x1½	3⅛	121
7511	¾	⅞x1½	3⅛	117
7512	1	1¼x1 11/16	3⅝	170

‡HUBBARD-CHANCE MESSENGER DEAD ENDS

Made of drop forged 5/16-inch steel, with reinforced slot bolt. Chance design with 1¼-inch diameter thimble section and side walls insures permanent roundness of the strand. No. 1104 is designed for a condition in which 2 messengers are dead-ended on a pole, and there is an unbalanced load on the dead-ends, or in which dead-ending on the cross-arms above requires an extra guy to balance the strain.


No. 1103

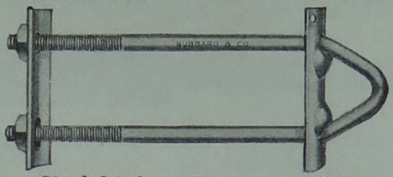

No. 1104

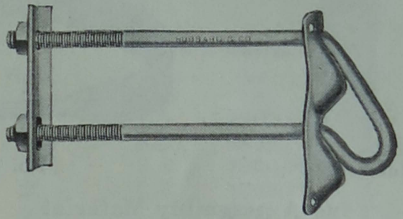
Cat. No.	Size Slots Inches	Size Strand		Wt. Lbs. Per 100
		Messenger	Guy	
1103	11/16x1 1/16	⅝	----	125
1104	11/16x1 1/16	⅝	½	215

*E. E. I. (N. E. L. A.) Std. A. T. & T. Std.

‡Licensed under patents of A. B. Chance.

HUBBARD-CHANCE GUY LOOPS AND SADDLES


Straight-Away Loop and Saddle


Guy Loop and Saddle

Hubbard - Chance Straight - Away Loops and Saddles are used for dead-ending on poles or for attaching guy wires that make small angles with the horizontal. The Guy Loops and Saddles provide a neat and sturdy attachment for down guys. The saddle is so designed that it supports and holds the loop in alignment. For heavy strains the Load or Breast Plates listed below should be used with these fixtures. Center to center spread between the legs of both styles is 4 inches. Load Plates are not included.

Straight-Away Loops and Saddles

Cat. No.	Dimensions—Inches		Ship. Wt. Lbs. Per 100
	Steel Dia. (Loop)	Pole Dia.	
8776	⅝	6 to 8	255
8778	⅝	8 to 10	285
8780	⅝	10 to 12	313
8782	⅝	12 to 14	343
8784	⅝	14 to 16	385
8788	¾	8 to 10	414
8790	¾	10 to 12	456
8792	¾	12 to 14	498
8794	¾	14 to 16	540
	Guy Loops and Saddles		
8756	⅝	6 to 8	338
8758	⅝	8 to 10	365
8760	⅝	10 to 12	394
8762	⅝	12 to 14	422
8764	⅝	14 to 16	465
8768	¾	8 to 10	496
8770	¾	10 to 12	532
8772	¾	12 to 14	579
8774	¾	14 to 16	621

HUBBARD-CHANCE LOAD OR BREAST PLATES

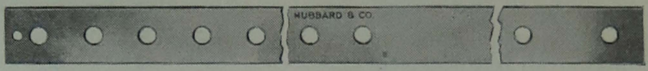
Hubbard-Chance Load or Breast Plates are used as back bearing plates when either the Guy Loop or Saddle or the Straight-Away Loop and Saddle are subject to heavy strains. The curved plate is provided with one hole and one slot on 4-inch centers.

Cat. No.	Dimensions—Inches				Ship. Wt. Lbs. Per 100
	Bolt Hole	Bolt Slot	Hole Spacing	Steel Size	
8877	¾	¾x1¼	4	7x2½x¼	112
8878	⅞	⅞x1½	4	7x2½x¼	112

Hubbard Pole Line Hardware

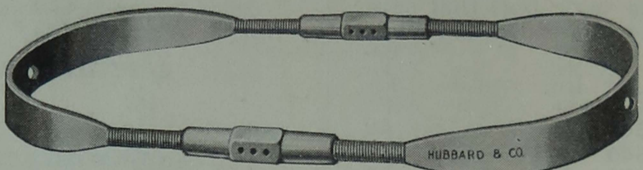
Hot Galvanized

HUBBARD POLE REINFORCING MATERIAL



No. 7850 Reinforcing Band

No. 7852 Reinforcing Pipe



No. 7753 Sleeve Nut Reinforcing Band

No. 7852-A Casting

Type A Assembly Material

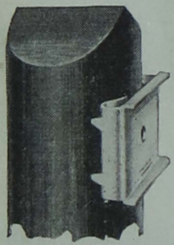
Cat. No.	Description	Size, Inches	Wt. Lbs. Per 100
†7850	Band	12 Ga. x 2 x 68½	451
†7851	Band	12 Ga. x 2 x 89½	577
†7852	Pipe	Extra Hvy. 2 x 5	242
7852-A	Casting	5 5/16 Long; 1½ Rad.	150
†7855	Band	12 Ga. x 2 x 99	858
†7856	Band	12 Ga. x 2 x 120	1100

†A. T. & T. Co. Standard.

Type B Assembly Material

Cat. No.	Dimensions, Inches: Pole and Stub Diam.	Dimensions, Inches: Length of Sleeve Nut	Wt. Lbs. Per 100
7750	8	4½	367
7751	10	6	550
7752	12	6	625
7753	14	6	700
7754	16	6	780
7755	18	8	950
7756	20	8	1020
7757	22	8	1100

PEIRCE POLE GAIN



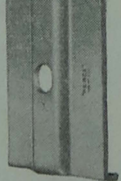
No. 5092

The Peirce Presteel Pole Gain is used for attaching cross arms to poles efficiently and quickly without the need for gaining the pole. This is of special importance when installing arms on full creosoted poles, because the use of the pole gain eliminates cutting through the creosoted exterior.

Cat. No.	Dimens., Inches: Size Arm	Dimens., Inches: Diam. Hole	Dimens., Inches: Size Steel	Shpg. Wt. Per 100
5091	3¼x4¼	13/16	9 ga.	285
5092	3½x4½	13/16	9 ga.	285
5093	3¾x4¾	13/16	9 ga.	285
5094	4 x5	13/16	9 ga.	285

PEIRCE CROSS ARM REINFORCING PLATE

Peirce Cross Arm Reinforcing Plates are designed to give greater effectiveness than the standard square washer and provide a means for preventing checking and splitting of the Cross Arm, at the point of attachment to the pole.

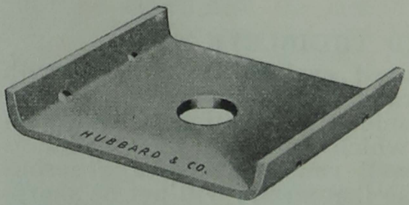


No. 5043

Cat. No.	Size of Cross Arm Inches	Diameter Hole Inches	Shpg. Wt. Per 100
5042	3¼x4¼	13/16	117
5043	3½x4½	13/16	119
5044	3¾x4¾	13/16	121
5045	4 x5	13/16	128
5047	6 x8	13/16	178

HUBBARD CROSS ARM REINFORCING PLATES

Hot Galvanized



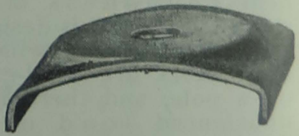
No. 5062

One-Hole type reinforcing plate fits over pin shank on bottom of arm. No. 5061 and 5064 are formed of No. 7 gauge steel, other sizes being ¼-inch in thickness.

Cat. No.	Dimensions, Inches: Cross Arm Size	Dimensions, Inches: Diam. of Pin Hole	Wt. Lbs. Per 100
5061	3¼ x 4¼	13/16	104
5062	3½ x 4½	13/16	109
5063	3¾ x 4¾	13/16	115
5064	4 x 5	13/16	121

PEIRCE CROSS ARM SADDLES

Used with forged steel pins on round top cross arms. Helps to prevent the arm splitting when subject to heavy strain.

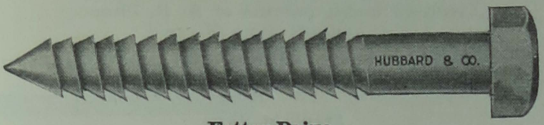


Cat. No.	Cross Arm Width In.	Pin Hole Diam. In.	Wt. Lbs. Per 100	Cat. No.	Cross Arm Width In.	Pin Hole Diam. In.	Wt. Lbs. Per 100
5001	3¼	13/16	87	5011	3¼	1 1/16	87
5002	3½	13/16	93	5012	3½	1 1/16	93
5003	3¾	13/16	99	5013	3¾	1 1/16	99
5004	4	13/16	105	5014	4	1 1/16	105
5005	5	13/16	130	5015	5	1 1/16	130

Hubbard Pole Line Hardware

Hot Galvanized

HUBBARD LAG SCREWS



Fetter Drive

Gimlet Point

Unless otherwise specified fetter drive threads will be furnished on all orders, except for ¼ and $\frac{5}{16}$-inch lags which are furnished gimlet point only.

¼ Inch Lag Screw

Cat. No.	Lgth. In.	Wt.Lbs. Per 100	Cat. No.	Lgth. In.	Wt.Lbs. Per 100
9722	2	2.8	9722½	2½	3.3

$\frac{5}{16}$ Inch Lag Screw

Cat. No.	Lgth. In.	Wt.Lbs. Per 100	Cat. No.	Lgth. In.	Wt.Lbs. Per 100
9732	2	4.7	9733	3	6.5
9732½	2½	5.6	9733½	3½	7.4

⅜ Inch Lag Screw

Cat. No.	Lgth. In.	Wt.Lbs. Per 100	Cat. No.	Lgth. In.	Wt.Lbs. Per 100
9742¼	2¼	7.8	†9744	4	12.2
9742½	2½	8.3	9744½	4½	13.5
9743	3	9.6	9745	5	14.8
9743½	3½	10.9	9746	6	17.4

½ Inch Lag Screw

Cat. No.	Lgth. In.	Wt.Lbs. Per 100	Cat. No.	Lgth. In.	Wt.Lbs. Per 100
9752½	2½	16.7	9755	5	28.2
9753	3	10	9755½	5½	30.5
9753½	3½	21.3	†9756	6	32.8
*9754	4	23.6	9756½	6½	35.1
†9754½	4½	25.9	9757	7	37.4

⅝ Inch Lag Screw

Cat. No.	Lgth. In.	Wt.Lbs. Per 100	Cat. No.	Lgth. In.	Wt.Lbs. Per 100
9764	4	35.1	9765½	5½	46.5
9764½	4½	38.9	†9766	6	50.3
*9765	5	42.7	---------	-----	-----

HUBBARD DOUBLE ARMING BOLTS

The double arming bolt, used with four square washers, represents a much more economical means of tying cross arms together than the old method of a wooden block.

The points are finished. All sizes **full threaded.**

½ Inch

Cat. No.	Lgth. In.	Wt.Lbs. Per 100	Cat. No.	Lgth. In.	Wt.Lbs. Per 100
9842	12	76	9850	20	110
9844	14	85	9852	22	120
9846	16	93	9854	24	128
9848	18	102	-------	----	-----

⅝ Inch

Cat. No.	Lgth. In.	Wt.Lbs. Per 100	Cat. No.	Lgth. In.	Wt.Lbs. Per 100
9862†	12	144	9870*†	20	200
9864*†	14	158	9872*	22	214
9866*†	16	172	9874*	24	228
9868*†	18	186	-------	----	-----

¾ Inch

Cat. No.	Lgth. In.	Wt.Lbs. Per 100	Cat. No.	Lgth. In.	Wt.Lbs. Per 100
9882	12	230	9890	20	310
9884	14	250	9892	22	330
9886	16	270	9894	24	350
9888	18	290	-------	----	-----

HUBBARD MACHINE BOLTS

Hubbard machine and through bolts, unless otherwise specified, are furnished with rolled threads which insure a perfect nut fit the full length of the thread.

⅜ Inch Bolts

Cat. No.	Lgth. In.	Wt. Lbs. Per 100	Cat. No.	Lgth. In.	Wt. Lbs. Per 100
9601	1	7.3	9603½	3½	14.6
9601¼	1¼	8.3	9604*	4	16.
9601½	1½	9.3	9604½*	4½	17.5
9602	2	10.3	9605*†	5	18.9
9602½	2½	11.7	9605½†	5½	20.4
9603†	3	13.1	9606	6	21.8

½ Inch Bolts

Cat. No.	Lgth. In.	Wt. Lbs. Per 100	Cat. No.	Lgth. In.	Wt. Lbs. Per 100
9701	1	16.	9705*†	5	36.3
9701¼	1¼	17.3	9706*†	6	41.4
9701½	1½	18.5	9707*	7	46.5
9702	2	21.	9708	8	51.6
9702½†	2½	23.6	9710	10	61.8
9703	3	26.1	9712	12	72.
9703½	3½	28.7	9714	14	82.2
9704	4	31.2	9716	16	92.4
9704½†	4½	33.8	9718	18	102.6
9704¾†	4¾	35.	9720	20	112.8

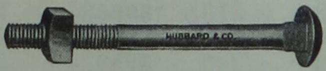
⅝ Inch Bolts

Cat. No.	Lgth. In.	Wt. Lbs. Per 100	Cat. No.	Lgth. In.	Wt. Lbs. Per 100
9801½	1½	32	9810*†	10	98
9802	2	36	9812*†	12	114
9802½	2½	40	9814*†	14	130
9803	3	44	9816*†	16	146
9803½	3½	48	9818*†	18	150
9804	4	52	9820*	20	164
9805	5	59	9822*	22	178
9806	6	66	9824*	24	192
9807	7	74	9826	26	206
9808*†	8	82	9828	28	220

¾ Inch Bolts

Cat. No.	Lgth. In.	Wt. Lbs. Per 100	Cat. No.	Lgth. In.	Wt. Lbs. Per 100
9901½	1½	49	9910	10	134
9902	2	55	9912	12	156
9902½	2½	60	9914	14	178
9903	3	66	9916	16	200
9903½	3½	71	9918	18	222
9904	4	77	9920	20	244
9905	5	88	9922	22	266
9906	6	99	9924	24	288
9907	7	106	9926	26	322
9908	8	112	9928	28	344

HUBBARD CARRIAGE BOLTS



Carriage bolts have standard heads, square nuts.

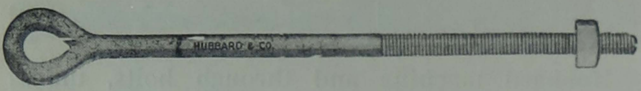
⅜ Inch Bolts			½ Inch Bolts		
Cat. No.	Lgth. In.	Wt. Lbs. Per 100	Cat. No.	Lgth. In.	Wt. Lbs. Per 100
9633	3	12.9	9643	3	24.7
9633½†	3½	14.3	9643½	3½	27.3
9634*†	4	15.8	9644	4	29.8
9634½*†	4½	17.2	9644½	4½	32.4
9635*	5	18.7	9645	5	34.9
9635½	5½	20.1	9645½	5½	37.5
9636	6	21.6	9646	6	40

*E. E. I. (N.E.L.A.) Standard. †A. T. & T. Standard.

Hubbard Pole Line Hardware

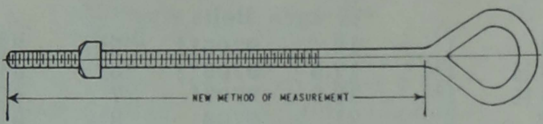
Hot Galvanized

HUBBARD DROP FORGED EYE BOLTS



Eye bolts are made with drop forged oval eye. All standard bolts except the 6-inch, are rolled threaded 6 inches. The 6-inch bolts are rolled threaded 4 inches.

The double arming eye bolts are roll threaded up to within 1½ inches of the eye and are provided with three nuts but no washers.



E.E.I. standard. Length measured from bottom (not center) of eye.

½ Inch

Size of Eye, Inside ¾ x 1 Inch

Cat. No.	§Lgth. In.	Wt. Lbs. Per 100	Cat. No.	§Lgth. In.	Wt. Lbs. Per 100
39936	6	71	**39944**	14	123
39938	8	83	**39946**	16	136
39940	10	96	**39948**	18	149
39942	12	109	**39950**	20	151

⅝ Inch

Size of Eye, Inside 1½ x 2 Inches

Cat. No.	§Lgth. In.	Wt. Lbs. Per 100	Cat. No.	§Lgth. In.	Wt. Lbs. Per 100
***39956**	6	131	**39966**	16	205
***39958**	8	145	**39968**	18	229
***39960**	10	169	**39970**	20	242
***39962**	12	179	**39972**	22	267
***39964**	14	192	**39974**	24	280

¾ Inch

Size of Eye, Inside 1½ x 2 Inches

Cat. No.	§Lgth. In.	Wt. Lbs. Per 100	Cat. No.	§Lgth. In.	Wt. Lbs. Per 100
39976	6	195	**39986**	16	308
39978	8	213	**39988**	18	345
39980	10	231	**39990**	20	374
39982	12	248	**39992**	22	404
39984	14	277	**39994**	24	434

Double Arming Eye Bolts

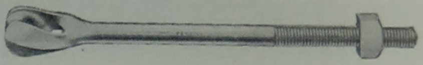
Size of Eye 2 x 1½ Inches

⅝-Inch			¾-Inch		
29786	16	253	**29796**	16	360
29788	18	267	**29798**	18	376
29790	20	286	**29800**	20	411

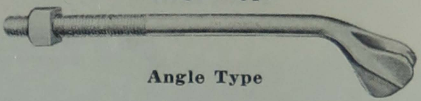
§Measured under eye. *E.E.I. (N.E.L.A.) Standard.

HUBBARD-CHANCE THIMBLEYE BOLTS

(Licensed under patents of A. B. Chance)



Straight Type



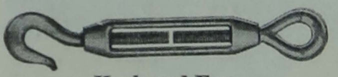
Angle Type

The use of the Hubbard-Chance Thimbleye Bolt in guying and dead-end construction effects a saving of from 3 to 5 feet of strand, besides eliminating the use of strain plates, guy hooks, lags and nails. Leaves the pole surface clear.

The Angle Thimbleye Bolt may be used in conjunction with a Thimbleye Nut for down guys of various types. Guy Plate No. 8891 is used with 1-inch diameter or under Thimbleye Bolts for heavy guy strains.

Straight Type		Size, In. (Exclud. Eye)	Size Str. In.	Angle Type	
Cat. No.	Wt. Lbs. Per 100			Cat. No.	Wt. Lbs. Per 100
6508	120	⅝x 8	½	**6008**	120
6510	140	⅝x10	½	**6010**	140
6512	160	⅝x12	½	**6012**	160
6514	180	⅝x14	½	**6014**	180
6515	190	⅝x15	½	**6015**	190
6516	200	⅝x16	½	**6016**	200
6518	220	⅝x18	½	**6018**	220
6610	200	¾x10	⅝	**6110**	200
6612	240	¾x12	⅝	**6112**	240
6614	280	¾x14	⅝	**6114**	280
6615	300	¾x15	⅝	**6115**	300
6616	320	¾x16	⅝	**6116**	320
6618	360	¾x18	⅝	**6118**	360

HUBBARD TURNBUCKLES



Hook and Eye

Clevis and Eye

All Hubbard turnbuckles including bodies, hooks, eyes and clevises are drop forged steel, insuring reliability and strength. Special Assemblies can be supplied.

Diam. of Bolt Inches	Dimensions in Inches					
	Open	Closed	Lgth. Opening	Wdth. Eye	Lgth. Eye	Wt. Lbs. Per 100
⅜	17	11	6	9/16	1	85
½	18	12	6	¾	1	160
½	24	15	9	¾	1	185
½	30	18	12	¾	1	210
⅝	19	13	6	1½	2	260
⅝	25	16	9	1½	2	310
⅝	31	19	12	1½	2	360
¾	19¼	13¼	6	1½	2	370
¾	25¼	16¼	9	1½	2	430
¾	31¼	19¼	12	1½	2	490

Assemblies

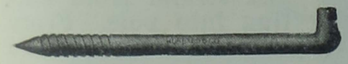
Size Inches	Number and Type of Assembly					
	Eye and Eye	Eye and Hook	Eye and Clevis	Hook and Hook	Hook and Clevis	Clevis and Clevis
⅜x 6	8601	8621	8641	8661	8681	8701
½x 6	8602	8622	8642	8662	8682	8702
½x 9	8603	8623	8643	8663	8683	8703
½x12	8604	8624	8644	8664	8684	8704
⅝x 6	8605	8625	8645	8665	8685	8705
⅝x 9	8606	8626	8546	8666	8686	8706
⅝x12	8607	8627	8647	8667	8687	8707
¾x 6	8608	8628	8648	8668	8688	8708
¾x 9	8609	8629	8649	8669	8689	8709
¾x12	8610	8630	8650	8670	8690	8710

Hubbard Pole Line Hardware

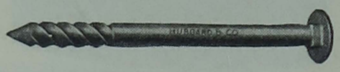
Hot Galvanized

HUBBARD POLE STEPS

For Wood Poles



Hook Head



Button Head

Standard Hook Head

Cat. No.	Diam. In.	Length In.	Wt. Lbs. Per 100
7123	9/16	9	70
7125	⅝	10	95

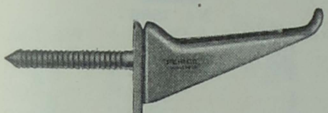
Long Hook Head

Cat. No.	Diam. In.	Length In.	Wt. Lbs. Per 100
7126	⅝	10	115

Button Head

Cat. No.	Diam. In.	Length In.	Wt. Lbs. Per 100
7129	⅝	9 11/16	105

PEIRCE DETACHABLE POLE STEP

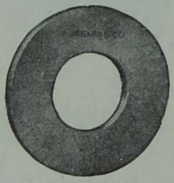


Nos. 7235 and 7236

Step slides down in a groove on each side of the head of the lag.

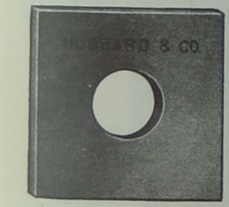
Cat. No.	Description	Exten. from Pole In.	Wt. Lbs. Per 100
7235	Lag and Plate	------	34
7236	Step	5⅛	54

HUBBARD ROUND WASHERS



New open hearth steel, hot galvanized. Cleanly cut and evenly covered to insure a close fit.

Cat. No.	O.D. In.	Size of Hole In.	Size Bolt Inches Mach.	Size Bolt Inches Carriage	Wt. Lbs. Per 1000
7801*†	1	7/16	⅜	----	16
7802*	1¼	½	----	⅜	30
7803*†	1⅜	9/16	½	⅜	42
7805†	1¾	11/16	⅝	½	75
7806	2	13/16	¾	⅝	112

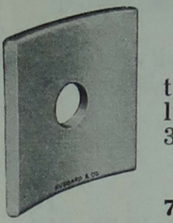


HUBBARD SQUARE WASHERS

New open hearth steel, hot galvanized. Cleanly cut and evenly covered to insure a perfect fit.

Cat. No.	Size Inches	Hole Inch	For Bolts Inch	Wt. Lbs. Per 1000
7812	2 x2 x⅛	11/16	⅝	145
7814*†	2¼x2¼x3/16	13/16	¾	240
7816	3 x3 x3/16	13/16	¾	435
7817*†	3 x3 x¼	13/16	¾	585
7818	4 x4 x3/16	13/16	¾	830
7819	4 x4 x¼	15/16	⅞	1170
7820*†	4 x4 x½	1 3/16	1	2150
7826†	3½x3½x⅜	15/16	⅞	1240
7827†	6 x6 x⅜	1 3/16	1	3700

*E. E. I. (N. E. L. A.) Standard. †A. T. & T. Co. Standard.



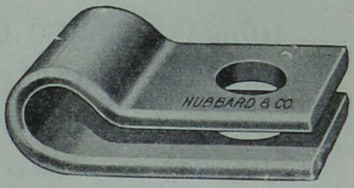
HUBBARD STUBBING WASHER

The stubbing washer is used for attaching a pole, rotted off at the ground line, to a new stub. Dimensions, 3¼x3⅛x¼ inches.

Cat. No.	Size of Hole, In.	For Bolt Size, In.	Wt. Lbs. Per 100
7825†	¾	⅝	75

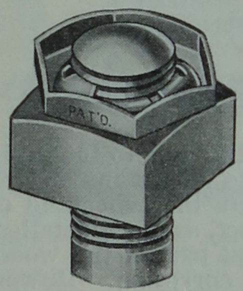
†A.T.&T. Standard.

HUBBARD SPRING WASHERS



Used extensively to eliminate radio interference. They insure a permanent tight fit.

Cat. No.	Dimensions, Inches Bolt	Hole Diam.	Steel Size	Overall Length	Wt. Lbs. Per 100
4538	⅜	7/16	5/32x1	2⅝	25
4539	½	9/16	5/32x1	2⅝	25
4540	⅝	11/16	¼x1¾	3½	100
4541	¾	13/16	¼x1¾	3½	100
4542	1	1 1/16	¼x1¾	3½	100



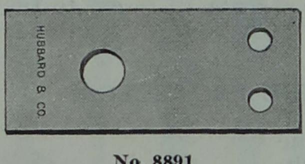
Palnut Installed

HUBBARD PALNUTS

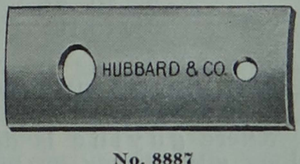
Palnuts are applied after regular nut is completely tightened. After it has contacted regular nut, prongs of the Palnut are drawn into the root of the bolt thread locking the nut permanently.

Cat. No.	Dimensions, Inches Bolt Size	Threads Per Inch	Width	Thickness	Wt. Lbs. Per 100
4530	⅜	16	⅝	.151	.39
4531	½	13	13/16	.190	.72
4532	⅝	11	1	.225	1.20
4533	¾	10	1⅛	.243	1.50
4534	⅞	9	1 7/16	.263	2.60

HUBBARD GUY AND LOAD PLATES



No. 8891



No. 8887

Used under the eye of Guyeye or Thimbleye angle bolts to distribute the strain of down-guys over a greater area. Dimensions of all plates 7x2½ inches.

Cat. No.	Dimen., Inches Bolt Diam.	Dimen., Inches Size Bolt Hole	Plate Thickness	Plate Description	Wt. Lbs. Per 100
		One 9/16 Inch Attachment Hole			
8887	⅝	11/16x 15/16	3/16	Curved	99
8888	¾	13/16x1 1/16	¼	Curved	128
8889	1	1 1/16x1 5/16	5/16	Curved	151
		Two 9/16 Inch Attachment Holes			
†8891	1*	1 1/16	5/16	Flat	151
8897	⅝	11/16x 15/16	3/16	Curved	95
8898	¾	13/16x1 1/16	¼	Curved	124
8899	1	1 1/16x1 5/16	5/16	Curved	148

†A. T. & T. Co. Standard. *1 inch and under.

Hubbard Pole Line Hardware

Hot Galvanized

PEIRCE LOCK WASHERS

"PEIRCE"
HUBBARD & CO.

Designed especially for use with long shank insulator pins.

Cat. No.	Size Pin Hole, In.	Size of Steel	Wt. Lbs. Per 100
5039	9/16	14 Ga.x1¼	9
5040	11/16	12 Ga.x1¾	10
5041	13/16	12 Ga.x1¾	10

HUBBARD SPRING LOCK WASHERS

Coiled flat from bars of special alloy steel. Designed for use with short shank Forged Steel Pins on steel arms.

Cat. No.	Dimensions in Inches Size of Pin Hole	Dimensions in Inches Size of Steel	Shpg. Wt. Per 100
5034	7/16	⅛x5/64	0.4
5035	9/16	3/16x3/32	2.2
5036	11/16	7/32x⅛	2.2
5037	13/16	¼x3/16	4.3
5038	1 1/16	¼x5/16	10.1

HUBBARD SPIRAL DOWELS

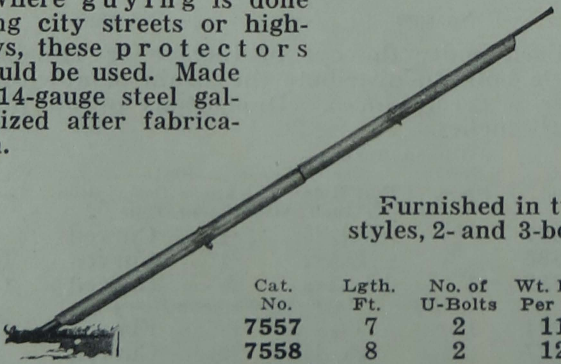
Pat. No. 2,014,892

Dowels are inserted at a right angle to the grain of the wood, perpendicular to the plane of the check and positively prevent further checking or splitting. Vibration has no effect, as once installed, the dowel becomes a permanent part of the wood. Complete insertion eliminates corrosion. Dowels may be inserted at any time after cutting of the timber, preferably in the green state, the most advantageous spot being at tthe crotch of the check. Life of cross arms and poles may be increased greatly by the use of dowels at points where checks have started.

Dimen., Inches Outside Diameter	Dimen., Inches Length	Dimen., Inches Outside Diameter	Dimen., Inches Length
¼	2½ to 6	7/16	3½ to 12
5/16	3 to 6½	½	4 to 18
⅜	3½ to 10	⅝	4 to 24

HUBBARD GUY WIRE PROTECTORS

Where guying is done along city streets or highways, these protectors should be used. Made of 14-gauge steel galvanized after fabrication.



Furnished in two styles, 2- and 3-bolt.

Cat. No.	Lgth. Ft.	No. of U-Bolts	Wt. Lbs. Per 100
7557	7	2	1131
7558	8	2	1200
7559†	8	3	1300

†A. T. & T. Co. standard.

HUBBARD STRAIN PLATES

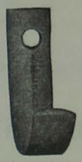
Designed to prevent guy strand from cutting into pole. From two to four plates are required per pole.

Made from 14 gauge galvanized steel.

Cat. No.	Size In.	Wt. Lbs. Per 100
7575*	4x8	75

HUBBARD GUY HOOKS

Made of half oval steel, bent with the flat side to the pole so as not to injure the guy strand. Nos. 7584 and 7586 are standard for general use. No. 7583½ formed from flat steel.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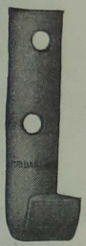
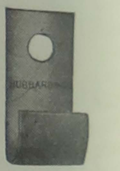
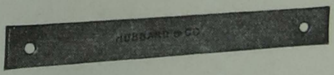

No. 7586


No. 7584

Cat. No.	Size Steel In.	Length In.	Diam. In.	Wt. Lbs. Per 100
7583½	1¼x¼	3¼	9/16	39
7584*†	1¾x⅜	4	11/16	87
7585	1½x⅜	3½	9/16	59
7586	1½x⅜	6	9/16	88

HUBBARD GUY SHIMS

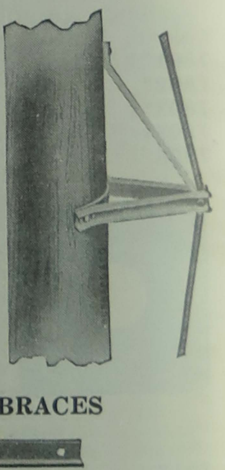


Keeps guy strand from cutting into pole.

Cat. No.	Size, In.	Wt. Lbs. Per 100
7570	1 7/32x7/32x8	57

*E.E.I. (N.E.L.A.) Standard. †A. T. & T. Co. standard.

PEIRCE POLE STRUTS



Especially designed for overhead line construction where it is impossible to secure guying privileges. Made of heavy steel channels, with a broad bearing against the pole, from which it extends 11 inches, and requires only the driving of three ½ inch lags to attach it rigidly to a pole of any diameter. Two struts are required for each self-supporting pole. Hot galvanized.

Cat. No.	Exten. from Pole, In.	Wt. Lbs. Per 100
1500	11	850
1518	18	1050
1519	24	1600

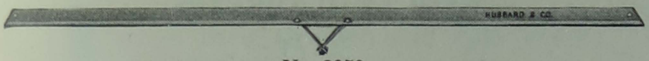
HUBBARD VERTICAL BRACES

Cat. No.	No. of Arms	Length Over All, In.	Size Angle Inches	Wt. Lbs. Per 100
		18 Inch Spacing		
7976	2	20	1½x1½x3/16	300
7977	3	38	1½x1½x3/16	570
7978	4	56	1½x1½x3/16	840
		24 Inch Spacing		
7986	2	26	1½x1½x3/16	390
7987	3	50	1½x1½x3/16	750
7988	4	74	1½x1½x3/16	1110

Hubbard Pole Line Hardware

Hot Galvanized

HUBBARD EXTENSION FIXTURES



No. 8050

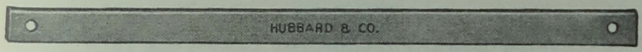
No. 8052

No. 8054

Designed for supporting either 6 or 10 pin arms, where it is necessary to clear buildings or trees without the use of high poles. No. 8051 being used with 6 pin and No. 8052 with 10 pin arms. Vertical brace is designed for 3 arms spaced 12 inches apart, or 2 arms on 24 inch centers, additional arms being cared for by placing other vertical braces in series with the first. All braces made of heavy open hearth steel angles, diagonal braces being 2 x 2 x 3/16 inch, back braces 2 x 2 x ¼ inch and the vertical braces 1¾ x 1¾ x ¼ inch. Bolts not included.

Cat. No.	Type Brace	Length In.	Wt. Lbs. Per 100
8050†	Diagonal, with Step	83	1750
8051†	Back	54½	1350
8052†	Back	66 7/16	1665
8054†	Vertical	30⅝	745

HUBBARD CROSS ARM BRACES



No. 8128

No. 6628 Ribbed Style
(Pat. Applied for)

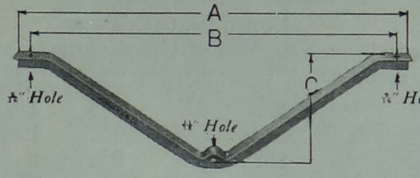
Hubbard Cross Arm Braces are made from new open hearth steel punched for a ½-inch through bolt or lag screw at the pole end and ⅜-inch carriage bolts at the arm end.

Ribbed Braces offer approximately 25% additional strength and are furnished in two weights as listed. Clearance is allowed so that the ribbed portion does not interfere with attachment to the arm on either side.

Cat. No.		Dimensions, Inches		Ship.
Plain	Ribbed	Steel Size	Length Overall	Wt. Lbs. Per 100
†8020	6620	7/32x1 7/32	20	156
8022	6622	7/32x1 7/32	22	172
8024	6624	7/32x1 7/32	24	187
8026	6626	7/32x1 7/32	26	202
8028	6628	7/32x1 7/32	28	218
†8030	6630	7/32x1 7/32	30	233
8032	6632	7/32x1 7/32	32	249
8120	8320	¼x1¼	20	184
8122	8322	¼x1¼	22	201
8124	8324	¼x1¼	24	220
8126	8326	¼x1¼	26	238
8128	8328	¼x1¼	28	256
8130	8330	¼x1¼	30	275
8132	8332	¼x1¼	32	293

†A. T. & T. Standard.

HUBBARD ANGLE CROSS ARM BRACES



Braces of any desired dimensions can be furnished.

When ordering special sizes give dimensions A, B and C, as indicated, and state size of angle and size of holes desired. Standard holes 9/16 and 11/16 inch.

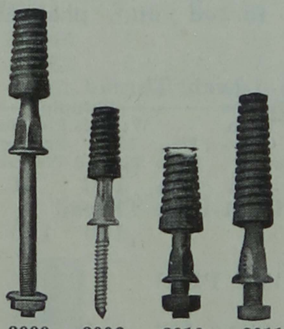
Cat. No.	Size Steel, In.	Inches A	Inches B	Inches C	Wt. Lbs. Per 100
7948	1½x1½x3/16	51	48	14	974
7950	1½x1½x3/16	40	37	12	705
7952	1½x1½x3/16	51	48	14¾	885
7953	1¾x1¾x3/16	63	60	18	1281
7954	1¾x1¾x3/16	69	66	20	1409
7955	1¾x1¾x3/16	75	72	18	1485
7956	2 x2 x3/16	75	72	22	1779
	E.E.I. (N.E.L.A.) Standards				
7940	1½x1½x3/16	45	42	12	776
7941	1½x1½x3/16	51	48	18	967
7942	1½x1½x3/16	63	60	18	1095
7943	1¾x1¾x3/16	75	72	22	1560

HUBBARD CROSS ARM BACK BRACES

Cat. No.	Size Steel, In.	Length Inches	Wt. Lbs. Per 100
7966	1½x1½x3/16	72	1100
7967	1¾x1¾x3/16	94	1512
7969†	1¾x1¾x3/16	109	1740

*E.E.I. (N.E.L.A.) Standard.
†A. T. & T. Co. Standard.

HUBBARD STANDARD WESTERN UNION PINS



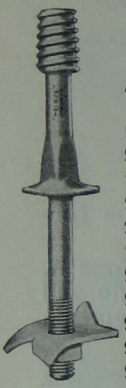
Cobs are of the best grade of air dried oak, turned to fit a gauge and boiled in paraffine to exclude all moisture. Pins are made of stiff, high carbon steel. Can be used with standard insulators having 1-inch pin holes.

Cat. No.	Diam. In.	Length, Inches Above Shoulder	Length, Inches Below Shoulder	Wt. Lbs. Per 100
		Long Shank Type		
8000	½	4¼	5	70
8005†	⅝	4¼	5	106
		Short Shank Type		
8010†	½	4¼	1	48
8011†	½	5	1	51
8015†	⅝	4¼	1	74
8015-A	⅝	4¼	1⅜	76
8016	⅝	5	1	77
		Lag Screw Pins		
8006	½	4¼	3	63
8007	⅝	4¼	3	90

Hubbard Pole Line Hardware

Hot Galvanized

PEIRCE FORGED STEEL PINS WITH LEAD THREADS*

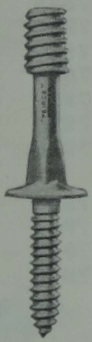


Long Shank Type For Wood Cross Arms

Cat. No.	Diam. In.	Shoulder Lgth., In. Above	Shoulder Lgth., In. Below	Shoulder Lgth., In. Total	Diam. of Base	Wt. Lbs. Per 100
971	½	4¾	5	9¾	1¾	108
974	½	4¾	5½	10¼	1¾	113
980	⅝	4¾	5	9¾	2	135
981	⅝	4¾	5½	10¼	2	142
981A	⅝	4¾	6½	11¼	2	149
982	⅝	6	5	11	2	146
984	⅝	6	5½	11½	2	152
983	⅝	6	6½	12½	2	160
990A	¾	4¾	5¾	10½	2½	190
990	¾	6	5¾	11¾	2½	205
991	¾	6	6¾	12¾	2½	215

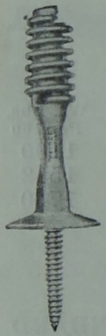
Lag Screw Type For Pole and Transformer Wiring

Nos. 973, 988 and 994 pins with lag screw shanks are being used largely wherever attachments of vertical runs of wires down the poles are necessary, as in feeders to arc and series lamps, etc.

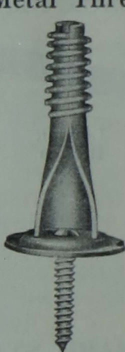


Cat. No.	Diam. In.	Shoulder Lgth., In. Above	Shoulder Lgth., In. Below	Shoulder Lgth., In. Total	Diam. of Base	Wt. Lbs. Per 100
973	½	4¾	3	7¾	1¾	85
975	½	6	3	9	1¾	103
988	⅝	4¾	3	7¾	2	100
989	⅝	7½	4	11½	2	140
994	¾	6	4	10	2½	143

*Add letter P to stock No. to obtain Pressed Metal Threads.



No. 125



No. 122

PEIRCE TRANSFORMER PINS

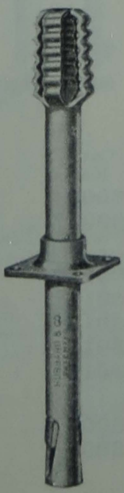
These pins are in popular use for running leads from the line cross arm to the transformer line, also for pole work such as running leads from the lighting circuit down the pole to the lighting fixtures.

Made of open hearth steel, drop forged and pressed steel.

Presteel Type—With 1-Inch Thread

Cat. No. Lead Thread	Cat. No. Spring Thread	Dimensions, Inches Size of Screw	Dimensions, Inches Lgth. Above Shoulder	Dimensions, Inches Lgth. Over-all	Dimensions, Inches Dia. Base	Shipping Wt. Lbs. Per 100 Lead Thread	Shipping Wt. Lbs. Per 100 Spring Thread
123	122	No. 22x2	4¾	6¾	2½	110	91
Forged Steel Type—With 1-Inch Thread							
126	125	No. 22x2	5	7	2	130	110

HUBBARD NO. 800 ECONOMY PINS

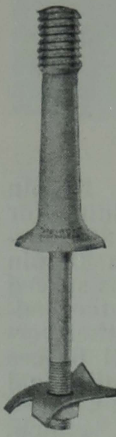


Hubbard Economy Pins serve for low voltage power or communication lines. They may be installed in a few seconds, do not weaken the arm by requiring a large hole, and can be salvaged in as short a time as it takes to install them. Fit in 11/16-inch hole. One installing rod is furnished with each lot of 100 pins.

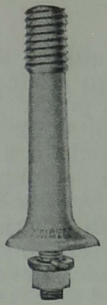
Length overall, 8⅝ inches; 4¾ inches above base; 3⅞ inches below base. ⅝ inch shank and body.

Cat. No.	Dia. Pin Thrd. In.	Size Steel	Wt. Lbs. Per 100
800	1	12 Ga.	60

PEIRCE FORGED STEEL PINS WITH LEAD THREADS



No. 5728



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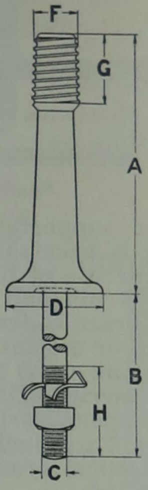
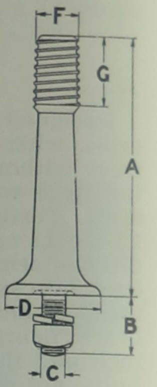




LONG SHANK FOR WOOD ARMS

With Lead Threads for Screwing into Insulators with 1-Inch Pin Hole

Cat. No.	Dimensions, Inches A	B	C	D	F	G	H	Shpg. Wt. Lbs. Per 100
5704	4	5½	¾	2½	1	1⅝	1¾	225
5708	5	5½	¾	2½	1	1⅝	1¾	240
5712	6	5½	¾	2½	1	1⅝	1¾	267

With Lead Threads for Screwing into Insulators with 1⅜-Inch Pin Hole

Cat. No.	Dimensions, Inches A	B	C	D	F	G	H	Shpg. Wt. Lbs. Per 100
5724	6	7	¾	3	1⅜	2⅛	3	450
5726	7	7	¾	3	1⅜	2⅛	3	485
5728	8	7	¾	3	1⅜	2⅛	3	536
5730	9	7	¾	3½	1⅜	2⅛	3	624
5732	10	7	¾	3½	1⅜	2⅛	3	688
5734	11	7	¾	3¾	1⅜	2⅛	3	759
5736	12	7	¾	3¾	1⅜	2⅛	3	826
5738	13	7	¾	3¾	1⅜	2⅛	3	893

SHORT SHANK FOR STEEL ARMS

With Lead Threads for Screwing into Insulators with 1-Inch Pin Hole

Cat. No.	Dimensions, Inches A	B	C	D	F	G	Shpg. Wt. Lbs. Per 100
5703	4	1¾	¾	2½	1	1⅝	167
5707	5	1¾	¾	2½	1	1⅝	181
5711	6	1¾	¾	2½	1	1⅝	207

With Lead Threads for Screwing into Insulators with 1⅜-Inch Pin Hole

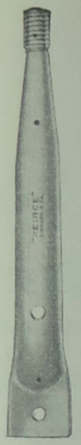
Cat. No.	Dimensions, Inches A	B	C	D	F	G	Shpg. Wt. Lbs. Per 100
5723	6	1¾	¾	3	1⅜	2⅛	365
5725	7	1¾	¾	3	1⅜	2⅛	400
5727	8	1¾	¾	3	1⅜	2⅛	450
5729	9	1¾	¾	3½	1⅜	2⅛	550
5731	10	1¾	¾	3½	1⅜	2⅛	599
5733	11	1¾	¾	3¾	1⅜	2⅛	673
5735	12	1¾	¾	3¾	1⅜	2⅛	733
5737	13	1¾	¾	3¾	1⅜	2⅛	793

Special pins for insulators having 1½-inch pin holes can be furnished.

Hubbard Pole Line Hardware

Hot Galvanized

PEIRCE PIPE POLE TOP PINS


No. 3079

For the higher voltage lines because of their strength and light weight. 11/16-inch mounting holes. Pipe pins without top mounting hole for use with supporting fixtures can be furnished when specified.

For 1⅜-Inch Pin Hole
Lead Thread

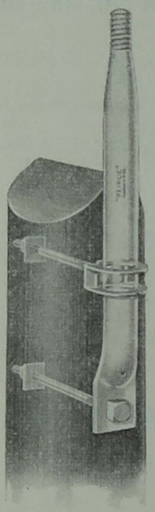
Cat. No.	Dimen., In. Pipe Size	Dimen., In. Lgth.	Wt. Lbs. Per 100
3070	1¼	18	385
3071	1½	18	503
3073	1½	24	908
3075	1½	28	985
3076	2	28	1207
3077	1½	32	1040
3078	2	32	1391
3079	2	36	1576
3093*	1½	22½	908

*Offset 5 inches.

PIPE PIN SUPPORTING FIXTURE

Bolt Hole 11/16 Inch

Cat. No.	Size Pipe Pin, In.	Wt. Lbs. Per 100
3090	1¼	61
3091	1½	73
3092	2	89


No. 3066 *Pipe Pole Top Pin*

No. 3092 *Supporting Fixture*

An installation of No. 3092 *Fixture for supporting a Pipe Pin on the pole.*

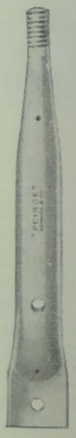
PRESTEEL POLE TOP PINS

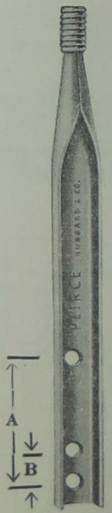
Special formation of conical top portion of these pins and their oversize construction gives them great strength. High carbon pressed steel channel is 1⅞ inches wide by 1 5/16 inches by No. 9 gauge.

For 1-Inch Pin Hole—Lead Thread

Cat. No. Straight Base	Cat. No. Flared Base	Dimens., In. Hole Spac. Base Straight A	B	* B	Ship. Wt. Lbs. Per 100
	15 Inches Long				
3026	**3180**	4	..	..	308
3162	**3179**	5	..	..	308
3165	**3185**	6	..	..	308
	16 Inches Long				
3159	**3177**	4	..	..	323
3163	**3183**	5	..	..	323
3166	**3186**	6	..	..	323
	18 Inches Long				
3027	**3181**	4	..	..	360
3028	**3182**	5	..	..	360
3167	**3187**	6	..	..	360
3170	**3190**	8	2	6	360
	20 Inches Long				
3174	**3194**	8	3	5	396
	24 Inches Long				
3160	**3189**	4	..	..	467
3164	**3184**	5	..	..	467
3168	**3188**	6	..	..	467
3171	**3191**	8	2	6	467

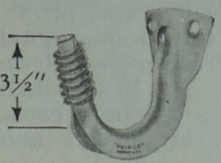
* "A" Dimensions on Flared same as Straight Base.


No. 3191



No. 3171

PEIRCE PRESTEEL POLE BRACKETS



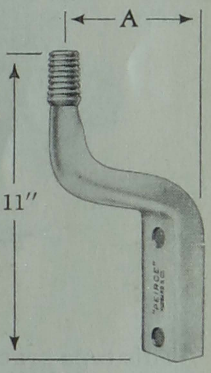
No. 137

Made with curved back for pole use. Especially desirable for supporting a single wire such as light railway feeders, series arc circuits and for long span telephone and signal work. 1-inch thread.

Cat. No.	Thread	Steel Size	Dimensions, In. Ext. From Pole	Dimensions, In. Mtg. Holes	Wt. Lbs. Per 100
20137	Lead	12 Ga.	4½	7/16	118
137	Spring	12 Ga.	4½	7/16	88

PEIRCE CHANNEL AND PRESTEEL POLE BRACKETS

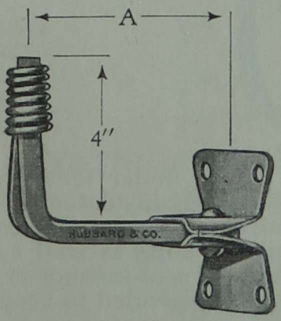
Nos. 20143 and 20144 Channel Brackets are used extensively for running light telephone circuits on transmission poles. For heavier work such as electric railway feeders and where greater extension from pole is desired Nos. 152 and 155 Presteel Brackets are recommended. Lead thread.



No. 152

Cat. No.	Dimensions, Inches Channel Size	Dimensions, Inches A Extension	Dimensions, Inches Mtg. Holes	Wt. Lbs. Per 100
20143	¾x ⅜x ⅛	2½	11/32	91
20144	1 x ½x ⅛	2½	7/16	118
152	2 1/16x1¼x9 Ga.	5	11/16	233
155	2⅛x1 5/16x7 Ga.	5	11/16	278

PEIRCE 90° HOUSE BRACKET



No. 148

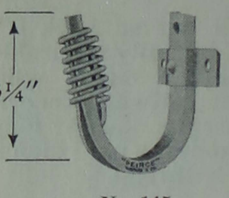
Peirce 90° House Brackets are used where 6 or 8-inch extensions are indicated. They are formed of 1x½x⅛ inch channel bent to a right angle and riveted to a pressed steel base. Base mounting holes are 7/16 inch. 1-inch thread.

Cat. No.	Thread	Dimensions, Inches Ext. A	Dimensions, Inches Base	Dimensions, Inches Mtg. Holes	W. Lbs. Per 100
20148	Lead	6	4⅛x3⅝	7/16	208
148	Spring	6	4⅛x3⅝	7/16	178

Hubbard Pole Line Hardware

Hot Galvanized

PEIRCE CHANNEL STEEL HOUSE BRACKETS

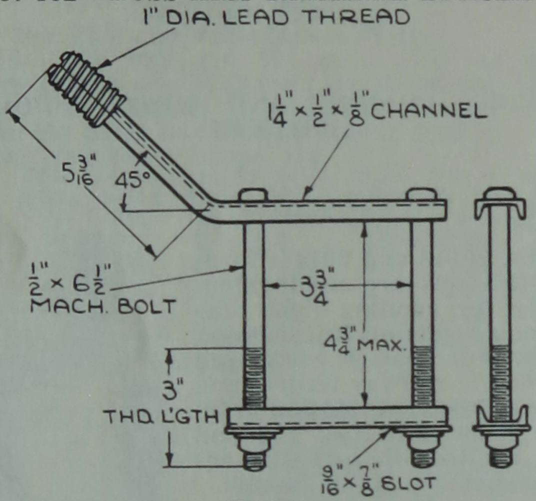


No. 145

This type bracket has been used for many years as an attachment for telephone, signal and light electric service wires. Furnished in ¾ x ⅜ x ⅛-inch channel with a 2⅞-inch cross strap, and standard 1-inch thread.

		Dimensions, Inches				
Cat. No.	Thread	Extension	Bearing Channel	Lgth. Strap	Mtg. Holes	Wt. Lbs. Per 100
20145	Lead	3½	3	2⅞	5/16	100
145	Spring	3½	3	2⅞	5/16	70

NO. 102 CROSS ARM TERMINAL BRACKET

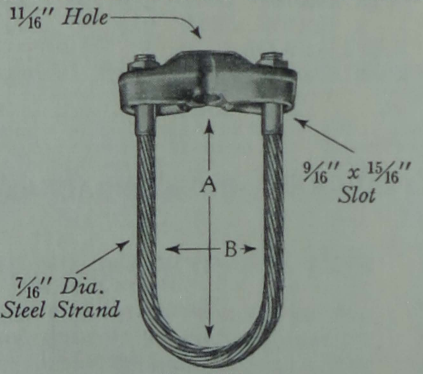


No. 102

This type bracket is used for dead-ending service lines on 3½x4½ inch and 3¾x4¾ inch cross arms. 1-inch lead insulator thread.

Cat. No.	Size Channel, In.	Bolt Size, In.	Wt. Lbs. Per 100
102	1¼x½x⅛	½x6½	250

HUBBARD FLEXIBLE BAIL CLEVISES

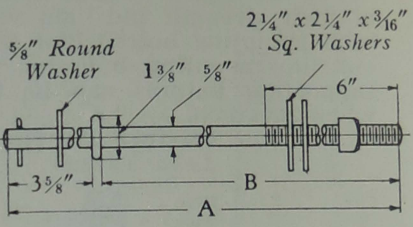


No. 1554

The stranded bail, when placed under tension, forms to fit any size or curvature of insulator, removing the hazard of concentrated stresses. Yokes are designed for mounting on eye bolts as well as machine bolts (square head recommended). Groove around the side of yoke is provided to keep eye centered.

Cat. No.		Dimensions, In.			Use With Insulator No.	Wt. Lbs. Per 100
			B			
Galv. Strand	Cpwld. Strand	A	Min.	Max.		
1552	**1562**	3⅞	1¾	2½	502 or 512	160
1554	**1564**	4 13/16	1¾	2½	504 or 514	165
1556	**1566**	5½	1¾	2½	506 or 516	170

HUBBARD INSULATOR BOLTS—Type No. 1

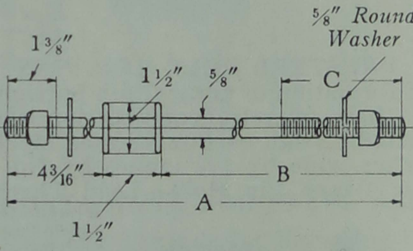


Type No. 1

Insulator bolts for spool insulators are popular for rural secondary lines. They usually employ the rack-type insulator installed in a horizontal position. Type No. 1 is the simple bolt type with a single shoulder and cotter key for the insulator. Furnished in lengths for pole diameters up to 15 inches. Wires are spaced approximately 2 inches from pole using a No. 355 insulator. Insulator not included.

	Dimensions, Inches			
Cat. No.	A	B	Steel Diam.	Wt. Lbs. Per 100
8721	11 15/16	8	⅝	163
8722	13 15/16	10	⅝	180
8723	15 15/16	12	⅝	198
8724	17 15/16	14	⅝	217
8725	19 15/16	16	⅝	235

HUBBARD INSULATOR BOLTS—Type No. 5



Type No. 5

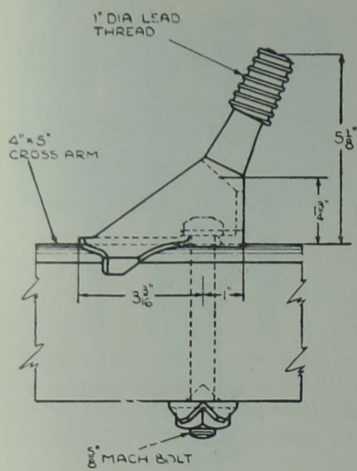
Double shoulder is provided which spaces insulator 1½ inches away from pole. Type No. 5 has a nut on the insulator end. Wires are spaced approximately 3⅛ inches from the pole. For use with Insulator No. 355.

	Dimensions, Inches				
Cat. No.	A	B	C	Steel Diam.	Wt. Lbs. Per 100
8822	12	6	3½	⅝	172
8823	12½	6½	3½	⅝	176
8824	13	7	3½	⅝	179
8825	13½	7½	4½	⅝	184
8826	14	8	4½	⅝	188
8827	14½	8½	4½	⅝	191
8828	15	9	5½	⅝	196
8829	15½	9½	5½	⅝	200
8830	16	10	5½	⅝	204
8831	16¼	10½	5½	⅝	208

Hubbard Pole Line Hardware

Hot Galvanized

HUBBARD CROSS ARM ANGLE PIN



No. 4304

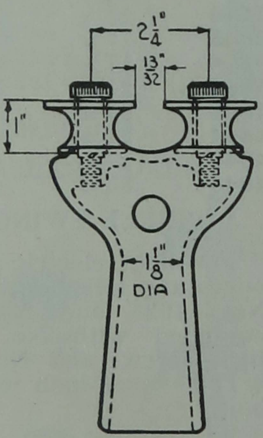
Cross Arm Angle Pins are made of malleable iron and are used for corner and angle work when tying the wire inside the groove of the insulator. Pin is so designed that there is very slight crushing of the cross arm under the most severe loading. For arms up to 4 inches thick. Lead threads.

Cat. No.	Dimensions, Inches Size Thread	 Ext. Above Arm	Wt. Lbs. Per 100
4304	1 Lead	5⅛	350
4309	1⅜ Lead	8½	677

HUBBARD PIN TYPE WIRE STRINGING PULLEY

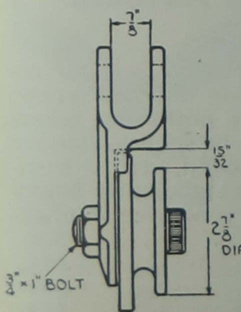
Consists of a malleable casting with two parallel steel sheaves equipped with oil retaining bronze bushings held in place by stripper bolts. Positive lock washers keep bolts tight. Pulley will not damage the 1 inch lead thread of a standard insulator pin with which it is used. Clearance for conductor, 13/32 inches. Size pin top, standard 1-inch thread.

Cat. No.	Style	Wt. Lbs. Per 100
1240	For Pins	315



No. 1240

HUBBARD ANGLE TYPE STRINGING PULLEY

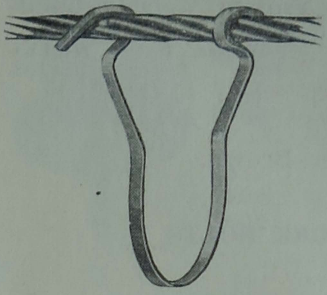


No. 1243

Designed for use with all swinging insulator and is particularly adapted to sagging angles of from 30 to 60 degrees. Clevis section is to fit over the eye of a small disk insulator or eye bolt. Clearance for conductor, 15/32 inches. Size pin top, standard 1-inch thread.

Cat. No.	Style	Wt. Lbs. Per 100
1243	Suspension	335

COPPERWELD NATIONAL TYPE CABLE RINGS

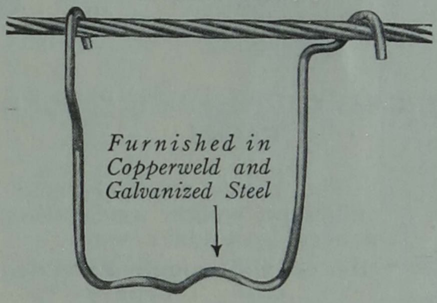


Formed from flat, extra high strength copperweld wire, with rounded edges. They will not harm the lead cable sheath nor will they slip out of position when cables are being pulled in.

Cat. No.	Dimensions, Inches Size Cable	 Size Wire	Wt. Lbs. Per 100
8241	1½	.091 x .180	4.2
8242	2	.125 x .225	8.4
8243	2½	.125 x .225	10.0
8244	3	.125 x .225	11.5
8245	3½	.125 x .225	12.5
8246	4	.125 x .275	18.2
8247	4½	.125 x .275	19.2
8248	5	.125 x .275	20.7

Specify size of strand when ordering.

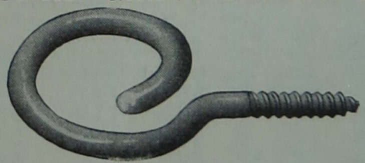
BLACKBURN NEVERSLIP TYPE CABLE RINGS


Furnished in Copperweld and Galvanized Steel

Offers greater area of support for the cable, reducing the number needed per span by approximately 20 per cent. Specify size of strand, when ordering.

Cat. No.	Dimensions, Inches Size Cable	 Size Wire	Wt. Lbs. Per 100
		Copperweld	
8211	1½	.112 x .212	12.5
8212	2	.112 x .212	15.0
8214	2½	.140 x .250	20.0
8215	3	.140 x .250	23.0
8216	3½	.140 x .250	24.5
		Galvanized	
8281	1½	.112 x .212	12.4
8282	2	.112 x .212	14.7
8283	2½	.140 x .250	19.5
8284	3	.140 x .250	22.0
8285	3½	.140 x .250	24.0

NATIONAL GALV. BRIDLE RINGS

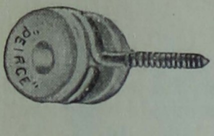


Style	Eye Size Inches	Approx. Ship. Wt. Lbs. Per 1000	Style	Eye Size Inches	Approx. Ship. Wt. Lbs. Per 1000
A	1⅝	115	E	⅝	30
C	1¼	75	F	3	300

Hubbard Pole Line Hardware

Hot Galvanized

PEIRCE TELEPHONE KNOB SCREW

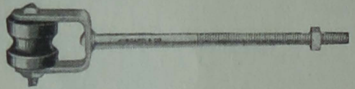


For use on wooden buildings. Screw, ⅜x1½ inches.

Cat. No.	Dimens., In. Hole	Dimens., In. Screw	Wt. Lbs. Per 100
2919*	9/16	11x1⅞	11
2920†	⅝	22x2½	48

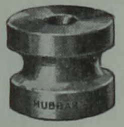
*Small—White. †Large—Brown.

HUBBARD FORK BOLTS



Cat. No.	Dia. In.	Lgth. In.	Wt. Lbs. Per 100	Cat. No.	Dia. In.	Lgth. In.	Wt. Lbs. Per 100
8810	½	10	104	**8813**	⅝	12	156
8811	½	12	114	**8814**	⅝	14	171
8812	½	14	124	**8815**	⅝	16	186

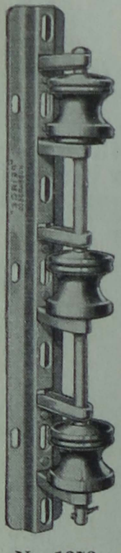
PEIRCE INSULATORS



For fork bolts and forks.

Cat. No.	Wire Groove	Bolt Hole	Wt. Lbs. Per 100
357	11/16	25/64	40

PEIRCE HEAVY U-THROUGH SECONDARY RACKS



No. 1378

The heavy presteel racks are of sufficient weight and strength for general secondary work.

Heavy U-Through Extended Back Type

Cat. No.	No. of Line Wires	Line Wire Spac., In.	Overall Lgth. of Back, In.	Shpg. Wt. Lbs. Per 100
1271	1	....	9¼	338
1278	2	8	17¼	786
1282	2	12	21¼	831
1374	3	4	17¼	879
1378	3	8	25¼	1234
1382	3	12	33¼	1259
1478	4	8	33¼	1612

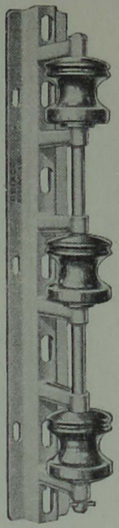
Heavy U-Through Non-Extended Back Type

Cat. No.	No. of Line Wires	Line Wire Spac., In.	Overall Lgth. of Back, In.	Shpg. Wt. Lbs. Per 100
1728	2	8	14	761
1732	2	12	18	801
1734	3	4	14	804
1738	3	8	22	1189
1742	3	12	30	1214
1748	4	8	30	1557

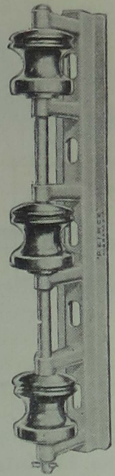
Light U-Through Type

Cat. No. Extended Back	Cat. No. Non-Extended Back	No. of Line Wires	Line Wire Spacing In.	Overall Length, In. Extended Back	Overall Length, In. Non-Extended Back	Shpg. Wt. Lbs. Per 100 Extended Back	Shpg. Wt. Lbs. Per 100 Non-Extended Back
1276	**1026**	2	6	13¼	11½	532	512
2768	**1028**	2	8	16½	13½	567	542
2772	**1032**	2	12	19¼	17½	597	572
1376	**1036**	3	6	19¼	17½	688	663
3768	**1038**	3	8	24½	21½	733	703
3772	**1042**	3	12	31¼	29½	808	773
1476	**1046**	4	6	25¼	23½	804	774
4768	**1048**	4	8	32½	28½	1029	989

PEIRCE SECONDARY RACKS



No. 3848



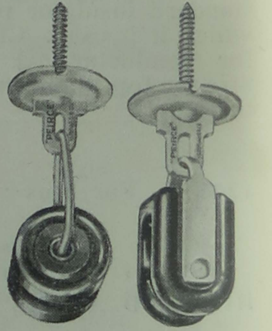
No. 3838

Peirce designs include styles suitable for all secondary distribution requirements from standpoint of strength, lightness, adaptability to varied conditions and ease of attachment. These may be had in Extended or Non-Extended Back styles for all except light service electroweld type.

Heavy Service Electroweld Type

Extended Back Cat. No.	Extended Back Overall Lgth., In.	No. of Line Wires	Wire Spacing, In.	Non-Extended Back Cat. No.	Non-Extended Back Overall Length, In.
2844	13¼	2	4	**2834**	9¾
2846	15¼	2	6	**2836**	11¾
2848	17¼	2	8	**2838**	13¾
3844	17¼	3	4	**3834**	13¾
3846	21¼	3	6	**3836**	17¾
3848	25¼	3	8	**3838**	21¾
4844	21¼	4	4	**4834**	17¾
4846	27¼	4	6	**4836**	23¾
4848	33¼	4	8	**4838**	29¾

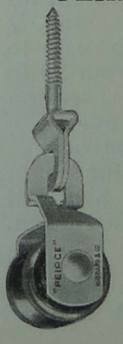
PEIRCE SWINGING KNOB FIXTURES



For light electric service wires and telephone twists. Nos. 2925 and 2932 are equipped with No. 22x2-inch screw, and No. 2945 with ⅜ x 5-inch carriage bolt.

Cat. No.	With Ins. No.	Wt. Lbs. Per 100
2925	1603	70
2926	2937	60
2932	1602	95
2945	1603	111

PEIRCE SWINGING KNOB FIXTURES



Sister Hook Type

The sister hook feature permits removal of insulator for driving screw. The ⅜x3-inch gimlet point lag screw is trapped in the eye in such a manner as to be positively locked against turning. Either bracket is sufficiently heavy for general secondary service connections.

Cat. No.	With Ins. No.	Exten. In.	Std. Pkg.	Wt. Lbs. Per 100
2928	1606	4 7/16	100	165
2929	355	5⅛	75	250

Hubbard Pole Line Hardware

Hot Galvanized

PEIRCE WIREHOLDER

No. 7-11-77

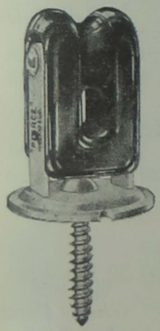
No. 4-11-44

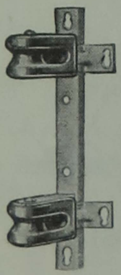
Constructed on the "Metal in tension-porcelain in compression" principle, the Nos. 4-11-44 and 7-11-77 series of wireholders has the added advantage of an extra large wire hole without the sacrifice of strength and without added weight.

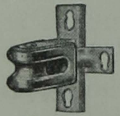
Nos. 4-11-100 and 7-11-100 are the same as Nos. 4-11-44 and 7-11-77 except completely nonferrous. All will accommodate service wires or cables of a size which formerly demanded a special bracket. Screws are full threaded.

Cat. No.	Equipped With	Dimensions, Inches: Size of Screw or Bolt	Dimensions, Inches: Size of Wire Hole	Ship. Wt. Lbs. Per 100
4-11-40	Toggle Bolt	5/16x4½	⅞x1	80
4-11-42	Carriage Bolt	⅜x5	⅞x1	80
4-11-44	Wood Screw	No. 22x2¼	⅞x1	65
4-11-45	Wood Screw	No. 22x3	⅞x1	67
4-11-46	Wood Screw	No. 22x4	⅞x1	69
4-11-48	Wood Screw	No. 22x6	⅞x1	73
4-11-64	Stud Bolt	⅜x½	⅞x1	65
4-11-100	Wood Screw	No. 22x2¼	⅞x1	65
7-11-70	Toggle Bolt	5/16x4½	1¼	100
7-11-72	Carriage Bolt	⅜x5	1¼	125
7-11-75	Wood Screw	No. 22x3	1¼	97
7-11-76	Wood Screw	No. 22x4	1¼	99
7-11-77	Wood Screw	No. 22x2¼	1¼	95
7-11-78	Wood Screw	No. 22x6	1¼	103
7-11-94	Stud Bolt	⅜x½	1¼	93
7-11-100	Wood Screw	No. 22x2¼	1¼	95

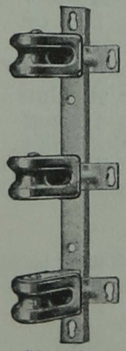
PEIRCE STANDARD WIREHOLDERS

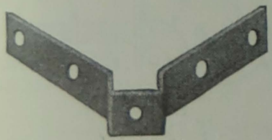

No. 190


No. 296


No. 191

No. 191-A


No. 396

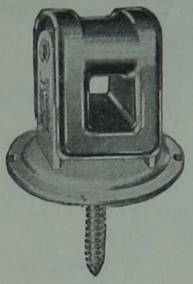

No. 501

Wireholders come assembled with insulators.

Cat. No.	No. of Wires	Spacing Inch	Std. Pkg.	Wt. Lbs. Per 100
190	1	0	50	65
191	1	0	50	80
191A	1	0	25	70
296	2	6	25	190
299	2	9	25	208

Cat. No.	No. of Wires	Spacing Inch	Std. Pkg.	Wt. Lbs. Per 100
394	3	4½	25	270
396	3	6	25	300
494	4	4½	25	390
1602	Insulator Only		100	35
501	Corner Iron		25	20

PEIRCE "1190" WIREHOLDER



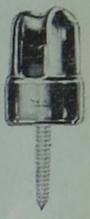
The heavy type wireholder is intended for use with duplex, triplex or single twisted wires for making house service connections. Especially adapted for heavy, long span work. No. 24x2½-inch screw.

Cat. No.	Size Wire Hole	Std. Pkg.	Wt. Lbs. Per 100
1190	1⅛x1⅛	125	147
1604	Ins. only	100	59

PEIRCE ALL-PORCELAIN WIREHOLDERS

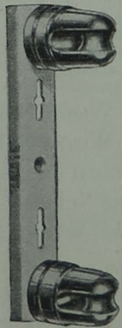
The screw-type all-porcelain wireholder combines a wall bracket, insulator and screw all in one. To install: a jab, a few turns and it is in. This type of wireholder has been designed so that no metal is exposed after installation.

No. 1614


No. 1621

Cat. No.	Equipped With	Size Screw or Bolt	Wire Holes	Wt. Lbs. Per 100
1607	Galv. Screw	No. 22x2¼	¾x13/16	108
1617	Brass Screw	No. 22x2¼	¾x13/16	108
1627	Toggle Bolt	¼x4½	¾x13/16	110
1637	Carriage Bolt	⅜x5	¾x13/16	122
1614	Galv. Screw	No. 20x2¼	11/16x13/16	85
1624	Brass Screw	No. 20x2¼	11/16x13/16	85
1634	Toggle Bolt	¼x4½	11/16x13/16	86
1644	Carriage Bolt	⅜x5	11/16x13/16	99
1621	Galv. Screw	No. 20x2¼	⅝	60
1631	Brass Screw	No. 20x2¼	⅝	60
1641	Toggle Bolt	¼x4½	⅝	62
1651	Carriage Bolt	⅜x5	⅝	74
1625	Galv. Screw	No. 22x2¼	29/32	122
1635	Brass Screw	No. 22x2¼	29/32	122
1645	Toggle Bolt	¼x4½	29/32	124
1655	Carriage Bolt	⅜x5	29/32	136
	With Double Wire Groove			
1622	Galv. Screw	No. 20x2¼	9/16x¾	65
1632	Brass Screw	No. 20x2¼	9/16x¾	65

Standard package, 50.


No. 4299

PEIRCE WIREHOLDERS

All Porcelain Multi-Point Type

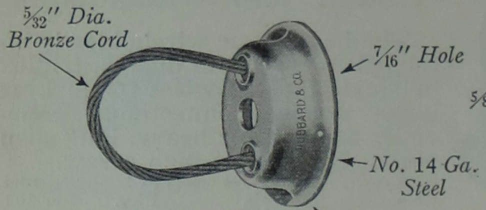
The Peirce All-Porcelain Multi-Point Wireholders come equipped with No. 1654 All-Porcelain Insulators which have a ⅜-inch bolt for screwing into the presteel back. Insulators can be installed after the back has been mounted to the building eliminating breakage.

Cat. No.	No. of Wires	Wire Spacing Inches	Shpg. Wt. Per 100
4296	2	6	223
4299	2	9	250
4394	3	4½	325
4396	3	6	343
1664	Insulator with ⅜-inch bolt		100

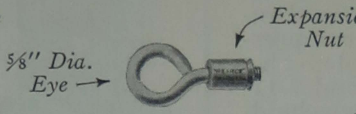
Hubbard Pole Line Hardware

ATTACHMENTS FOR SNUB-GRIP AND WEDGE-GRIP BRACKETS

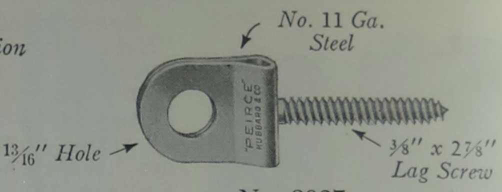
Hot Galvanized


5/32" Dia.
Bronze Cord
7/16" Hole
HUBBARD & CO.
No. 14 Ga.
Steel

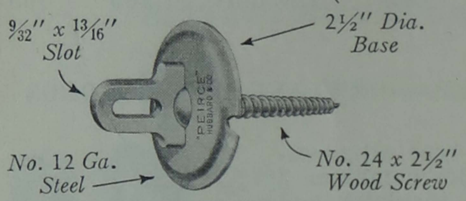
No. 3915


5/8" Dia.
Eye
Expansion
Nut

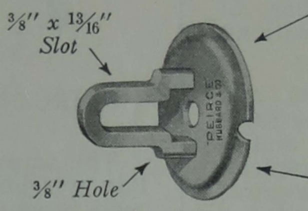
No. 3926


No. 11 Ga.
Steel
13/16" Hole
"PEIRCE" HUBBARD & CO.
3/8" x 2 7/8"
Lag Screw

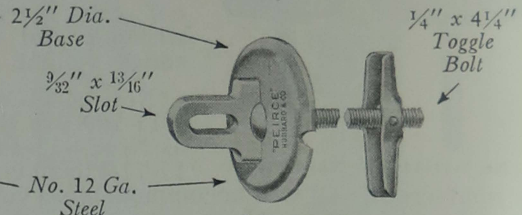
No. 3927


9/32" x 13/16"
Slot
2½" Dia.
Base
"PEIRCE" HUBBARD & CO.
No. 12 Ga.
Steel
No. 24 x 2½"
Wood Screw

No. 3935


3/8" x 13/16"
Slot
"PEIRCE" HUBBARD & CO.
3/8" Hole

No. 3936

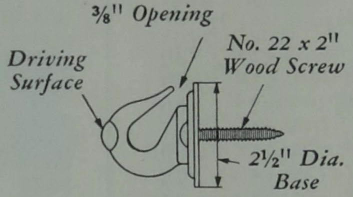

2½" Dia.
Base
1/4" x 4¼"
Toggle
Bolt
9/32" x 13/16"
Slot
"PEIRCE" HUBBARD & CO.
No. 12 Ga.
Steel

No. 3937

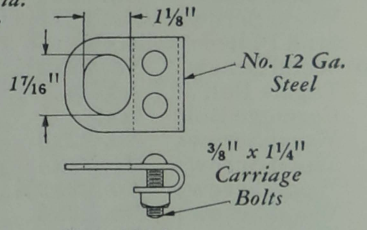
SNUB-GRIP AND WEDGE-GRIP ATTACHMENTS

Hot Galvanized

No. 3915 is a special stranded loop attachment designed to eliminate creaking noises caused by cables swinging in the wind. It is used for Snub-Grip attachments.

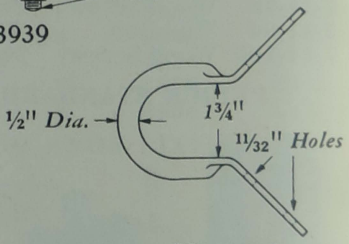

⅜" Opening
Driving
Surface
No. 22 x 2"
Wood Screw
2½" Dia.
Base

No. 3924

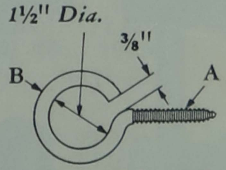

1⅛"
1 7/16"
No. 12 Ga.
Steel
⅜" x 1¼"
Carriage
Bolts

No. 3939

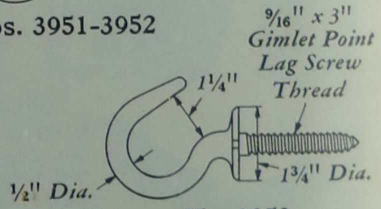
No. 3924 is a hook for Wedge-Grip attachments to wood. No. 3925 is the same as No. 3935 illustrated above except for the screw size (see listing). No. 3926 is a small eye for Wedge-Grip attachments to masonry. No. 3927 is a Screw Eye for Wedge-Grip attachments to wood. No. 3935 is a Screw Eye with base for Wedge-Grip attachments to wood. No. 3936 is an Eye and Base for attachment over ¼ or 5/16 inch expansion bolts. No. 3937 is a toggle arrangement for Wedge-Grip attachments to tile or hollow walls. No. 3939 is a Plate and Bail arrangement for attaching Snub-Grips. No. 3946 is a Corner Bracket for Snub-Grip or Wedge-Grip attachments. No. 3951 and 3952 are similar Screw Eyes for Snub-Grip attachments. No. 3953 is a forged Screw Hook for Snub-Grip or Wedge-Grip attachments. No. 3954 is a presteel screw hook for Snub-Grip or Wedge-Grip Attachments.


½" Dia.
1¾"
11/32" Holes

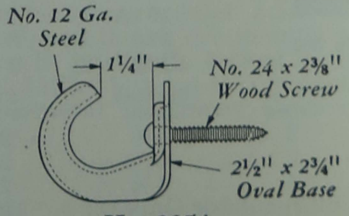
No. 3946



Nos. 3951-3952


9/16" x 3"
Gimlet Point
Lag Screw
Thread
1¼"
½" Dia.
1¾" Dia.

No. 3953


No. 12 Ga.
Steel
1¼"
No. 24 x 2⅜"
Wood Screw
2½" x 2¾"
Oval Base

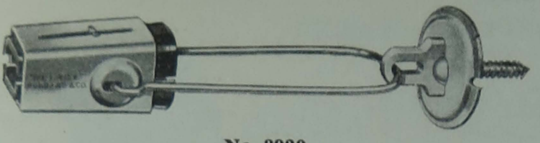
No. 3954

Cat. No.	Type of Attachment	Size of Screw, Bolt or Hole, In.	Wt. Lbs. Per 100
3915	Wood or Masonry	7/16 Hole	71
3924	Wood	No. 22x2 Wood Screw	40
3925	Wood	No. 22x2 Wood Screw	40
3926	Masonry	¼ Expansion Nut	17
3927	Wood	⅜x2⅞ Lag Screw	35
3935	Wood	No. 24x2½ Wood Screw	39
3936	Wood or Masonry	⅜ Hole	28
3937	Toggle Bolt	¼x4¼ Toggle Bolt	42
3939	Wire	⅜ and Smaller Wire	47
3945	Wood or Masonry	6—5/16 Hole, 1—7/16 Hole	46
3946	Wood or Masonry	11/32 Holes	58
3951	Wood (B) 11/32" Steel	(A) No. 22x2 Wood Screw	24
3952	Wood (B) 7/16" Steel	(A) No. 30x2 Wood Screw	41
3953	Wood	9/16x3 Lag Screw Thread	95
3954	Wood	No. 24x2⅜ Wood Screw	93

HUBBARD POLE LINE HARDWARE

Hot Galvanized

PEIRCE WEDGE GRIP SERVICE BRACKET

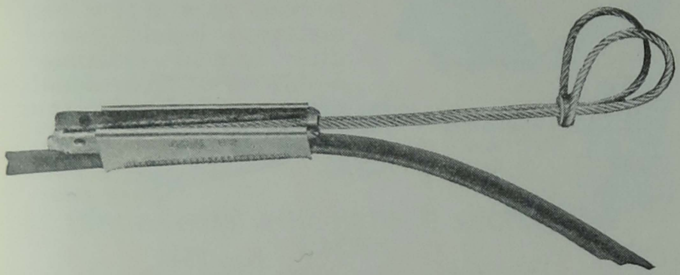


No. 3920

Used for anchoring multiple service cables; tapered jaws of bakelite encased in a steel shell tightly grip the cable. These are in turn held by a removable wire bale. Furnished for flat or round cable.

Cat. No.	Description	Wt. Lbs. Per 100
3920	Flat Jaw for Flat Cable	90
3922	Grooved Jaw for Round Cable	90
3925	Screw Eye	40
3926	¼-inch Eye Bolt and ¼-inch Peirce Expansion Nut	17

RELIABLE CONCENTRIC CABLE CLAMPS



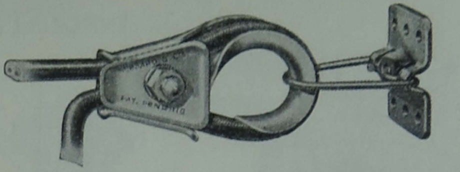
The Reliable Cable Clamp has a large margin of strength over field requirements. Bails of different sized clamps range from 1,000 to 1,800 pounds strength. A full range of sizes has been made available to provide for all major requirements.

Cat. No.	Cable Size	Bail	Wt. Lbs. Per 100	Price Each
	No. 8 Round 2-Conductor			
82	.335 to .435	Phos. Bz. Str.	32	**$0.33**
82S	.335 to .435	Solid Copper	34	**.26**
	No 6 Round 2-Conductor			
62	.405 to .530	Phos. Bz. Str.	36	**.36**
62S	.405 to .530	Solid Copper	38	**.29**
	No. 2 Round 2-Conductor			
22	.605 to .740	Phos. Bz. Str.	60	**.38**
22S	.605 to .740	Solid Copper	62	**.43**
	No. 8 Oval 3-Conductor			
83	.350 to .450 x .770	Phos. Bz. Str.	42	**.40**
83S	.350 to .450 x .770	Solid Copper	44	**.35**
	No. 6 or 8 Oval 3-Conductor			
63	.450 to .580 x .900	Phos. Bz. Str.	50	**.40**
63S	.450 to .580 x .900	Solid Copper	52	**.35**
	No. 6 or 8 Armored Oval 3-Conductor			
63A	.500 to .620 x .900	Phos. Bz. Str.	50	**.40**
63AS	.500 to .620 x .900	Solid Copper	52	**.35**
	No. 4 Oval 3-Conductor			
43	.560 to .720 x 1.100	Phos. Bz. Str.	76	**.65**
43S	.560 to .720 x 1.100	Solid Copper	78	**.50**

Service cable installing tools can be supplied, if desired, at **$2.50** each.

HUBBARD POLE LINE HARDWARE

HUBBARD SNUB-GRIP BRACKETS

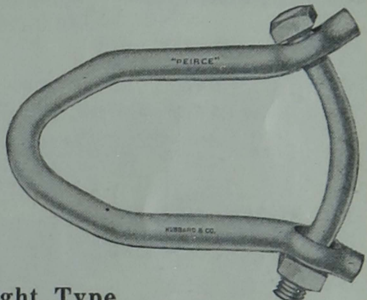


Hubbard snub-grips hold the full strength of the cable without pinching or injuring the cable insulation. No. 3940 has a 1¾-inch diameter "loop" and No. 3942 measures 2½ inches. Width of the groove in the loop is ¾ inch for No. 3940 and 1 inch for No. 3942.

No. 3945, the attachment plate and bail is not included.

	Snub-Grip				
	Cable Sizes, Inches				
	Round		Flat		
Cat. No.	Min.	Max.	Min.	Max.	Ship. Wt. Lbs. Per 100
3940	.350	.563	.350x.500	.561x.687	85
3942	.450	.650	.450x.590	.650x.931	110
	Base and Bail				
3945	-----	-----	--------------	--------------	40

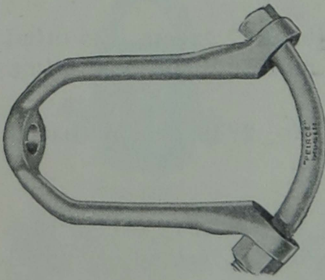
HUBBARD STRAIN INSULATOR CLEVISES



Light type is made of 7/16 inch round open hearth steel, drop forged. Equipped with ⅜ inch curved bolt.

Heavy type is made of ½ inch steel with ½ inch bolt.

Cat. No.	Dimen. In.	Wt. Lbs. Per 100	Cat. No.	Dimen. In.	Wt. Lbs. Per 100
		Light Type			
801	3x1½	62	**807½**	3½x2¼	84
802	4x1½	72	**808**	4x2¼	79
803	3x1¾	64	**809**	5x2¼	89
804	4x1¾	74	**810**	3x2½	71
805	3x2	66	**811**	4x2½	81
806	4x2	76	**811½**	4½x2½	100
807	3x2¼	68	**812**	5x2½	91
		Heavy Type			
821	3x1½	96	**828**	4x2¼	120
822	4x1½	111	**828½**	4½x2¼	126
823	3x1¾	102	**829**	5x2¼	132
824	4x1¾	114	**830**	3x2½	111
825	3x2	105	**831**	4x2½	125
826	4x2	117	**831½**	4½x2½	131
827	3x2¼	108	**832**	5x2½	137
827½	3½x2¼	136	-----	---------	-----



Eye Type

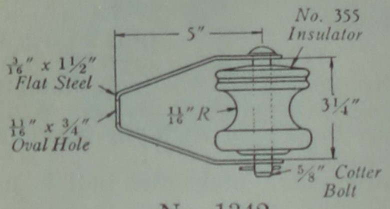
The eye type clevis is similar in all respects to the standard heavy type, except that an eye is drop forged in the crotch of the clevis and is provided with an 11/16-inch hole.

Cat. No.	Dimen. In.	Wt. Lbs. Per 100	Cat. No.	Dimen. In.	Wt. Lbs. Per 100
841	3x1½	117	**848**	4x2¼	125
842	4x1½	129	**848½**	4½x2¼	141
843	3x1¾	119	**849**	5x2¼	147
844	4x1¾	131	**850**	3x2½	126
845	3x2	121	**851**	4x2½	138
846	4x2	133	**851½**	4½x2½	144
847	3x2¼	123	**852**	5x2½	150
847½	3½x2¼	150	-----	---------	-----

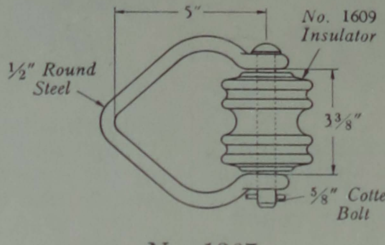
Hubbard Pole Line Hardware

Hot Galvanized

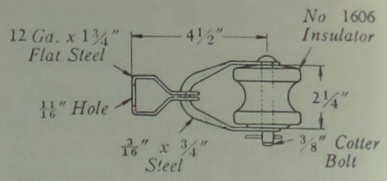
INSULATED CLEVISES


5″
No. 355 Insulator
3/16″ x 1½″ Flat Steel
11/16″R
3¼″
11/16″ x ¾″ Oval Hole
⅝″ Cotter Bolt

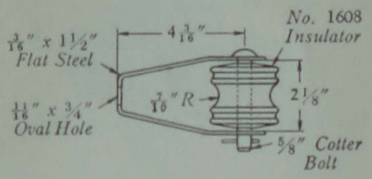
No. 1342


5″
No. 1609 Insulator
½″ Round Steel
3⅜″
⅝″ Cotter Bolt

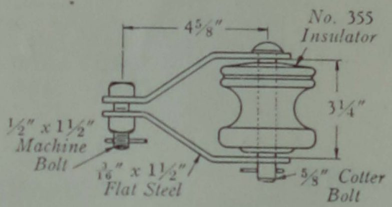
No. 1367


12 Ga. x 1¾″ Flat Steel
4½″
No 1606 Insulator
2¼″
11/16″ Hole
3/16″ x ¾″ Steel
⅜″ Cotter Bolt

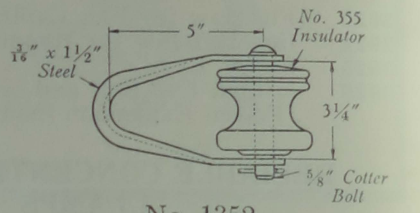
No. 2948


3/16″ x 1½″ Flat Steel
4 3/16″
No. 1608 Insulator
11/16″ x ¾″ Oval Hole
7/16″R
2⅛″
⅝″ Cotter Bolt

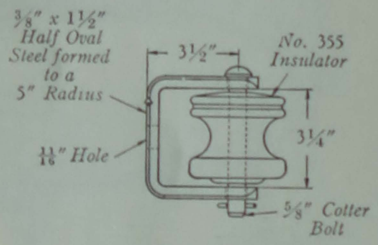
No. 1339


4⅝″
No. 355 Insulator
3¼″
½″ x 1½″ Machine Bolt
3/16″ x 1½″ Flat Steel
⅝″ Cotter Bolt

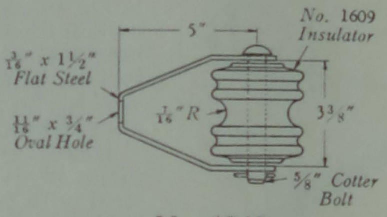
No. 1351


3/16″ x 1½″ Steel
5″
No. 355 Insulator
3¼″
⅝″ Cotter Bolt

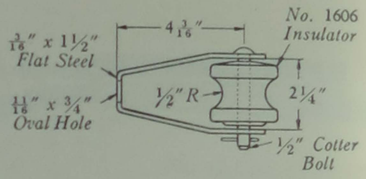
No. 1352


⅜″ x 1½″ Half Oval Steel formed to a 5″ Radius
3½″
No. 355 Insulator
3¼″
11/16″ Hole
⅝″ Cotter Bolt

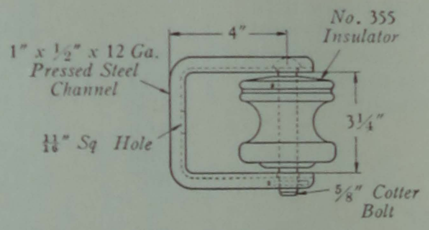
No. 565


5″
No. 1609 Insulator
3/16″ x 1½″ Flat Steel
11/16″ x ¾″ Oval Hole
7/16″R
3⅜″
⅝″ Cotter Bolt

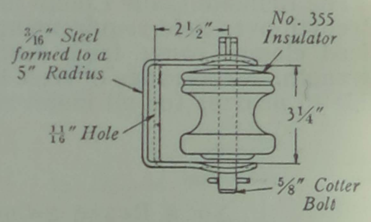
No. 1340


3/16″ x 1½″ Flat Steel
4 3/16″
No. 1606 Insulator
11/16″ x ¾″ Oval Hole
½″R
2¼″
½″ Cotter Bolt

No. 1341


1″ x ½″ x 12 Ga. Pressed Steel Channel
4″
No. 355 Insulator
3¼″
11/16″ Sq Hole
⅝″ Cotter Bolt

No. 568


3/16″ Steel formed to a 5″ Radius
2½″
No. 355 Insulator
3¼″
11/16″ Hole
⅝″ Cotter Bolt

No. 1338

No. 564 clevis is similar to No. 565 except that it has a 9/16-inch square mounting hole for a ½-inch carriage bolt.

No. 1335 is similar to No. 1367 except it has a 3½-inch extension and a 2¼-inch spread for insulator.

No. 1337 is similar to No. 1338 except that it has a 3½-inch extension and a 3½-inch back width.

No. 1368 is similar to No. 1367 except it is fitted with a 11/16-inch hole for machine bolt mounting.

No. 2938 is similar to No. 2948 except that it has a wet process insulator.

No. 3938 is also similar to No. 2948 except that it is furnished with an angle clip instead of swivel attachment.

Cat. No.	Style of Insulator	Dimensions, Inches: Extension to Center of Insulator	Dimensions, Inches: Width of Back	Dimensions, Inches: Radius of Back	Ship. Wt. Lbs. Per 100
1337	355 Dry	3½	3½	3	270
1338	355 Dry	2½	3	5	284

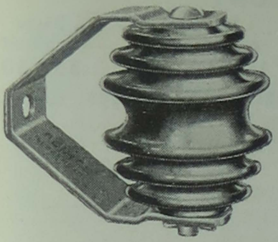
Cat. No.	Insulator No. Wet Proc.	Dimensions, Inches: Exten. to Center of Cotter Bolt	Dimensions, Inches: Spread for Insulator	Dimensions, Inches: Mtg. Hole Dia.	Ship. Wt. Lbs. Per 100
1335	1608	3½	2¼	----	204
1367	1609	5	3⅜	----	308
1368	1609	5½	3⅜	11/16	327

Cat. No.	Style of Insulator	Mount. Hole Size, Inches	Ship. Wt. Lbs. Per 100
1339	No. 1608, Wet Process	11/16x¾ Oval	165
1340	No. 1609, Wet Process	11/16x¾ Oval	288
1341	No. 1606, Dry Process	11/16x¾ Oval	154
1342	No. 355, Dry Process	11/16x¾ Oval	253
564	No. 355, Dry Process	9/16 Square	327
565	No. 355, Dry Process	11/16 Round	327
568	No. 355, Dry Process	11/16 Round	242
1351	No. 355, Dry Process	------------	327
1352	No. 355, Dry Process	------------	305
2938	No. 1706, Wet Process	11/16 Round	150
2948	No. 1606, Dry Process	11/16 Round	150
3938	No. 1706, Wet Process	11/16 Round	150

Hubbard Pole Line Hardware

Hot Galvanized

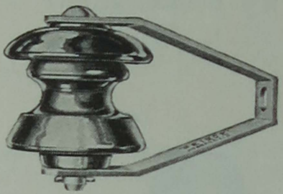
PEIRCE ONE-PIECE CLEVIS



No. 1344 clevis is formed of a single strip of ¼-inch by 1½-inch steel and equipped with No. 1613 wet process insulator. Adaptable to series street lighting circuits.

Cat. No.	Size Steel	Clevis Wet Flashover, Volts	Mechanical Strength Lbs.	Wt. Lbs. Per 100
1344	¼x1½	8000	4500	375

PEIRCE DEAD-END CLEVIS



The Peirce dead-end clevis provides a simple and effective means of dead-ending primaries of 2300 volts or less. Equipped with wet process brown glazed porcelain insulators formed with double skirt to provide a maximum flashover resistance.

Cat. No.	Extension to Center	Insulator Height	Mounting Hole	Wt. Lbs. Per 100
1346	5¼	3½	11/16	220

INSULATORS FOR PEIRCE SECONDARY RACKS

Double Groove Type

The double groove type has two grooves, one for tying in the main circuit and the other for service wires.

Cat. No.	Color of Glaze	Kind of Porcelain	Wt. Lbs. Per 100
356	Brown	Dry	102
456	Brown	Wet	102

Light Rack Type

No. 1606 for light racks is furnished with either brown or white glaze, both of which are made of dry process porcelain. Brown glazed No. 1606 is also used on No. 1341 clevis, on spreader racks, and on sister hooks and tree fixtures.

Cat. No.	Color of Glaze	Kind of Porcelain	Wt. Lbs. Per 100
1606	Brown	Dry	40

House Rack Type

Furnished only in brown glazed dry process porcelain. This insulator is also used on swinging knob fixtures.

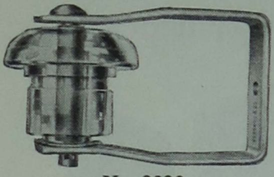
Cat. No.	Color of Glaze	Kind of Porcelain	Wt. Lbs. Per 100
1603	Brown	Dry	45

Standard Type

No. 355 is furnished on all heavy type racks unless otherwise specified. No. 455 is used where higher mechanical strength is required.

Cat. No.	Color of Glaze	Kind of Porcelain	Wt. Lbs. Per 100
355	Brown or White	Dry	100
455	Brown	Wet	100

HUBBARD DEAD-ENDING SHACKLE

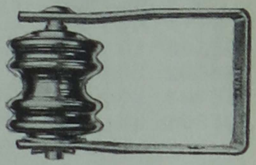


No. 9290

The Dead-ending Shackle is used by a number of Signal and Railroad Companies for dead-ending or breaking bare signal wires. Shackle clamps around cross arm, which gives it a greater holding power than pin type construction.

Cat. No.	Material	Dimen., Inches	Shpg. Wt. Per 100
9290	Shackle less Insulator............	3/16x1 3/16	265
9291	Glass Insulator	....	192

PEIRCE DEAD ENDING SHACKLE

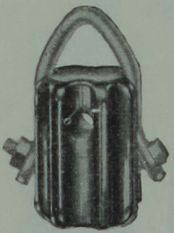


An effective method of dead-ending bare signal lines. Shackle is formed to fit around crossarm which gives it greater holder power than the pin type construction and serves as a reinforcement to the crossarm.

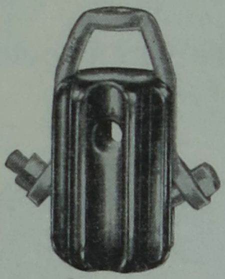
Mfrs. No.	Size Steel Inches	Size Arm Inches	Holes In.	Wt. Lbs. Per 100	Price Per 100
9296	3/16x1 3/16	3¼x4¼	9/16	365	**$130.00**

PEIRCE STRAIN INSULATORS

Multi-Fin Type—Wet Process



No. 514



No. 512

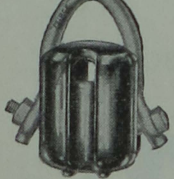
No. 512 designed for use with clevis No. 805 light type, No. 825 heavy type, No. 845 eye type.

No. 514 designed for use with clevis No. 808 light type, No. 828 heavy type, No. 848 eye type.

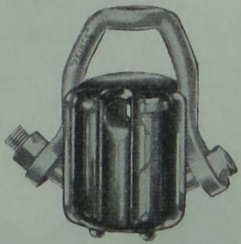
No. 516 designed for use with clevis No. 812 light type, No. 832 heavy type, No. 852 eye type.

Cat. No.	Line Voltage	Diam. Hole	Overall		Wt. Lbs. Per 100
			Length	Width	
512	2200	9/16	3½	2 15/16	152
514	4400	¾	5⅜	3⅝	258
516	6600	1	6¾	3 15/16	405

Standard Type—Dry Process



No. 502



No. 504

No. 502 designed for use with clevis No. 805 light type, No. 825 heavy type, No. 845 eye type.

No. 504 designed for use with clevis No. 807½ light type, No. 827½ heavy type, No. 847½ eye type.

No. 506 designed for use with clevis No. 811½ light type, No. 831½ heavy type, No. 851½ eye type.

Cat. No.	Dimensions, Inches			Wt. Lbs. Per 100
	Diam. Hole	Overall Length	Overall Width	
502	9/16	3¼	2⅝	101
504	9/16	3¾	2⅞	148
506	13/16	5¼	3⅜	276

WESTINGHOUSE PORCELAIN STRAIN INSULATORS

Guy Strain Insulators are employed for head-guy and down-guy break-up insulation, and dead-ending of distribution and secondary service lines.

TYPE P-2 DRY AND WET PROCESS

Standard color of glaze is chocolate brown.

Dry Type

Cat. No.	Flashover Dry Kv.	Flashover Wet Kv.	Leak Dist. In.	Hght. In.	Wdth. In.	Diam. Hole	Sh. Wt. Per 100	Price Per 100
968500	15	7	1⅛	2 3/16	1½	5/16	26	**$10.00**
968502	23	12	2	3 7/16	2½	⅝	110	**25.00**
968504	26	14	2¼	4¼	2⅞	⅞	180	**36.00**
968506	33	17	2½	5⅜	3⅜	¾	300	**48.00**

Wet Type

Cat. No.	Flashover Dry Kv.	Flashover Wet Kv.	Leak Dist. In.	Hght. In.	Wdth. In.	Diam. Hole	Sh. Wt. Per 100	Price Per 100
502A*	23	12	2	3 7/16	2½	⅝	110	**30.00**
504A*	26	14	2¼	4¼	2⅞	⅞	180	**40.00**
506A*	33	17	2½	5⅜	3⅜	1	295	**55.00**

*N.E.L.A. standard D-560-23.

TYPE PS WET PROCESS

Standard color of glaze is chocolate brown.

Cat. No.	Flashover Dry Kv.	Flashover Wet Kv.	Leak Dist. In.	Hght. In.	Wdth. In.	Diam. Hole	Sh. Wt. Per 100	Price Per 100
530*	30	20	2½	3½	2⅝	⅝	134	**$30.00**
532*	42	24	3	5⅜	3¼	¾	276	**55.00**
534*	45	27	3¼	6¾	3½	1	455	**90.00**
536	50	28	3½	7	3¾	1	520	**110.00**

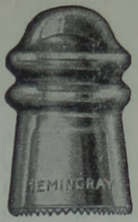
*N.E.L.A. standard D-570-28 T (Multi-fin).

TYPE PX WET PROCESS

Standard color of glaze is chocolate brown.

Cat. No.	Flashover Dry Kv.	Flashover Wet Kv.	Leak Dist. In.	Hght. In.	Wdth. In.	Diam. Hole	Sh. Wt. Per 100	Price Per 100
560	30	18	2¼	3½	2 17/32	⅝	128	**$30.00**
562	35	20	2½	4¼	2 13/16	1	188	**40.00**
564	43	23	3	5	3¼	1	284	**55.00**
566	50	27	3¾	6½	3 13/16	1	525	**90.00**

HEMINGRAY GLASS INSULATORS

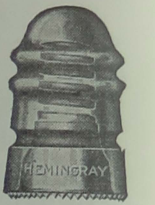


PONY

Cat. No.	Std. Pkg.	Wt. Lbs. Per Bx.	Price Per 1000
9	50	29	**$82.30**

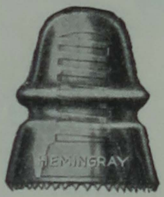
Dimensions: Hght. 3⅝ inches, diam. 2¼ inches, groove ⅜ inch.

PONY DOUBLE GROOVE



Cat. No.	Std. Pkg.	Wt. Lbs. Per Bx.	Price Per 1000
12	50	34½	**$84.60**

Dimensions: Hght. 3⅝ inches, diam. 2⅜ inches, groove ⅜ inch.



PONY DEEP GROOVE

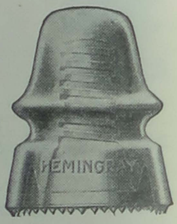
Double Petticoat

Cat. No.	Std. Pkg.	Wt. Lbs. Per Bx.	Price Per 1000
14	50	40½	**$105.80**

Dimensions: Hght. 3 5/16 inches, diam. 2 13/16 inches, groove ⅜ inch.

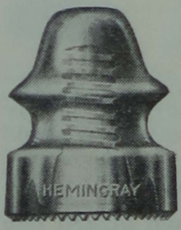
DEEP GROOVE

Double Petticoat



Cat. No.	Lkg. Dist. In.	Wet Arc. Dist. In.	Std. Pkg.	Wt. Lbs. Per Bx.	Price Per 1000
19	4⅛	1	50	62	**$142.15**

Dimensions: Hght. 3⅞ inches, diam. 3¼ inches, groove ½ inch.



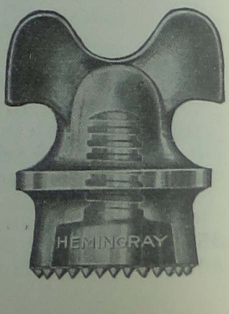
STREET RAILWAY OR EXTRA DEEP GROOVE

Double Petticoat

Cat. No.	Lkg. Dist. In.	Wet Arc. Dist. In.	Std. Pkg.	Wt. Lbs. Per Bx.	Price Per 1000
20	4⅜	1	50	64½	**$116.10**

Dimensions: Hght. 4 inches, diam. 3¼ inches, groove ⅓ inch.

CABLE



Cat. No.	Std. Pkg.	Wt. Lbs. Per Bx.	Price Per 1000
60	50	115	**$245.50**

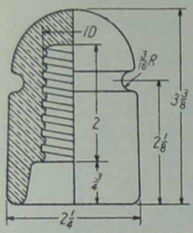
Dimensions: Hght. 5 inches, diam. 3¼ inches, groove 1½ inches.

WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS

TELEPHONE AND TELEGRAPH SERVICE

Radio-Interference-Proof (R.-I.-P.)

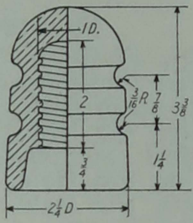
No. 100



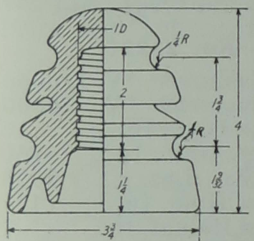
Dry Flashover Voltage	35000
Wet Flashover Voltage	20000
Leakage Distance, In.	3
Wet Arc. Distance, In.	⅝
Mech. Str. (approx.) Lbs.	2000
Size Pin Hole, In.	1
Shpg. Wt. Lbs., per 100	74
Number per Box	50
Price, Per 100	**$16.00**

No. 110

Dry Flashover Voltage	22000
Wet Flashover Voltage	15000
Leakage Distance, In.	2¼
Wet Arc. Distance, In.	½
Mech. Str. (approx.) Lbs.	2000
Size Pin Hole, In.	1
Shpg. Wt. Lbs., per 100	70
Number per Box	50
Price, Per 100	**$16.00**



No. 120

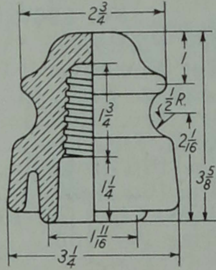


Dry Flashover Voltage	45000
Wet Flashover Voltage	28000
Leakage Distance, In.	2½
Wet Arc. Distance, In.	1½
Mech. Str., Lbs.	2500
Size Pin Hole, In.	1
Shpg. Wt. Lbs., per 100	156
Number per Box	50
Price, Per 100	**$40.00**

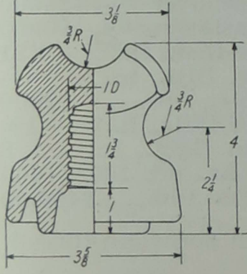
DISTRIBUTION SERVICE

No. 104

Dry Flashover Voltage	35000
Wet Flashover Voltage	20000
Leakage Distance, In.	4
Wet Arc. Distance, In.	1
Mech. Str., Lbs.	3000
Size Pin Hole, In.	1
Min. Pin Height, In.	4
Shpg. Wt. Lbs., per 100	122
Number per Box	50
Price, Per 100	**$22.00**



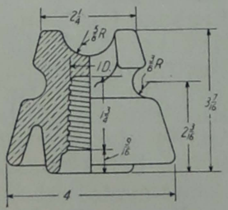
No. 106



Dry Flashover Voltage	50000
Wet Flashover Voltage	25000
Leakage Distance, In.	4
Wet Arc. Distance, In.	1⅛
Mech. Str., Lbs.	3000
Size Pin Hole, In.	1
Min. Pin Height, In.	4
Net Wt. Lbs., per 100	138
Shpg. Wt. Lbs., per 100	154
Number Per Box	50
Price, Per 100	**$30.00**

No. 136

Dry Flashover Voltage	50000
Wet Flashover Voltage	25000
Leakage Distance, In.	5
Wet Arc. Distance, In.	1½
Mech. Str., Lbs.	2500
Size Pin Hole, In.	1
Min. Pin Height, In.	4
Shpg. Wt. Lbs., Per 100	152
Number Per Box	50
Price Per 100	**$25.00**



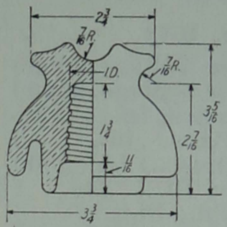
Standard color of glaze on all insulators is chocolate brown.

WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS

DISTRIBUTION SERVICE

Radio-Interference-Proof (R.-I.-P.)

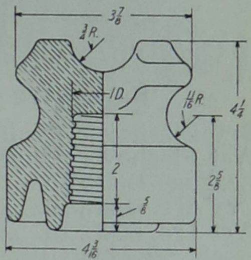
No. 146



Dry Flashover Voltage	50000
Wet Flashover Voltage	25000
Leakage Distance, In.	5¼
Wet Arc. Distance, In.	1¼
Mech. Str., Lbs.	2500
Size Pin Hole, In.	1
Min. Pin Height, In.	4
Shpg. Wt. Lbs., per 100	158
Number Per Box	50
Price, Per 100	**$25.00**

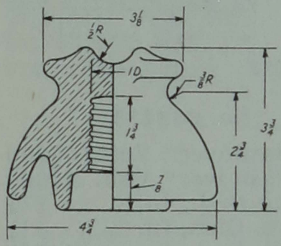
No. 156

Dry Flashover Volt.	55000
Wet Flashover Volt.	30000
Leakage Distance, In.	5
Wet Arc. Distance, In.	1½
Mech. Str., Lbs.	3000
Size Pin Hole, In.	*1
Min. Pin Height, In.	4
Net Wt. Lbs., per 100	245
Shpg. Wt. Lbs., per 100	272
Number Per Box	18
Price, Per 100	**$77.00**



*Insulator with 1⅜-inch pin hole is No. 126.

No. 166

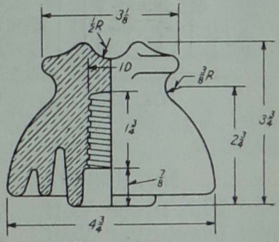


Dry Flashover Volt.	60000
Wet Flashover Volt.	30000
Leakage Dist., In.	7
Wet Arc. Dist., In.	1¾
Mech. Str., Lbs.	2500
Size Pin Hole, In.	†1
Shpg.Wt.Lbs., per 100	247
Number Per Box	18
Min. Pin Height, In.	5
Price, Per 100	**$40.00**

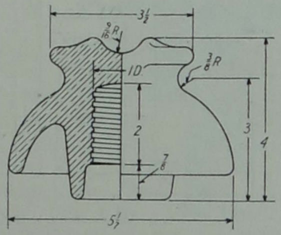
†Insulator with 1⅜-inch pin hole is No. 176.

No. 1311

Dry Flashover Volt.	60000
Wet Flashover Volt.	30000
Leakage Dist., In.	8
Wet Arc. Dist., In.	1¾
Mech. Str., Lbs.	2500
Size Pin Hole, In.	1
Min. Pin Hgh., In.	5
Shpg.Wt.Lbs., per 100	247
Number Per Box	18
Price, Per 100	**$40.00**



No. 1012

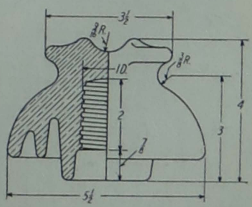


Dry Flashover Volt.	70000
Wet Flashover Volt.	40000
Leakage Dist., In.	8
Wet Arc. Dist., In.	2⅛
Mech. Str., Lbs.	3000
Size Pin Hole, In.	‡1
Min. Pin Hght., In.	5½
Shpg.Wt.Lbs., per 100	305
Number Per Box	18
Price, Per 100	**$54.00**

‡Insulator with 1⅜-inch pin hole is No. 1112.

No. 1013

Dry Flashover Volt.	70000
Wet Flashover Volt.	40000
Leakage Distance, In.	9
Wet Arc. Dist., In.	2¼
Mech. Str., Lbs.	3000
Size Pin Hole, In.	§1
Shpg.Wt. Lbs., per 100	335
Number Per Box	18
Min. Pin Height, In.	5½
Price, Per 100	**$54.00**



§Insulator with 1⅜-inch pin hole is No. 1113.

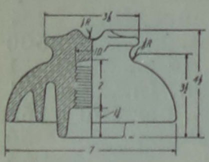
Standard color of glaze on all insulators is chocolate brown.

WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS

DISTRIBUTION SERVICE

Radio-Interference-Proof (R.-I.-P.)

No. 1014



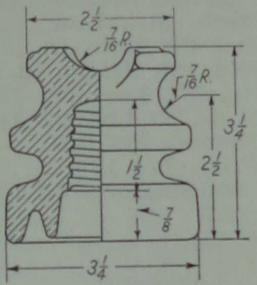
Dry Flashover Voltage	90000
Wet Flashover Voltage	50000
Leakage Distance, In.	12½
Wet Arc. Distance, In.	3
Mech. Str. (approx.) Lb.	3000
Size Pin Hole, In	1†
Min. Pin. Hght., In.	6
Number per Box	18
Shpg. Wt. Lbs., per 100	635
Price, Per 100	**$105.00**

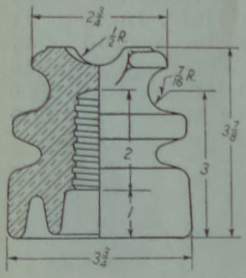
†Insulator with 1⅜-inch pin hole is No. 1114.

No. 968472

Dry Flashover *Volt.	55000
Wet Flashover *Volt.	35000
Leakage Dist., In.	6
Dry Arc. Dist., In.	3½
Wet Arc. Dist., In.	1½
Mech. Str., Lbs.	2500
Size Pin Hole, In.	1
Min. Pin Height, In.	4
Number per Box	50
Sh. Wt. Lbs., per 100	150
Price, Per 100	**$25.00**

*60 Cycle.





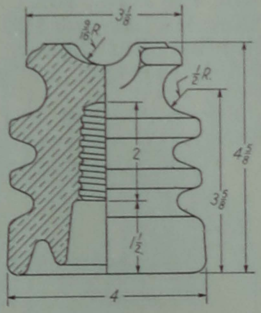
No. 968473

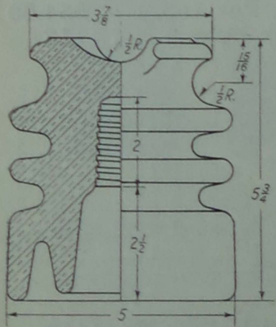
Dry Flashover* Volt.	65000
Wet Flashover* Volt.	40000
Leakage Dist., In.	7½
Dry Arc. Dist., In.	4½
Wet Arc. Dist., In.	1¾
Mech. Str., Lbs.	2500
Size Pin Hole, In.	1
Min. Pin Height, In.	5
Number per Box	25
Sh. Wt. Lbs., per 100	225
Price, Per 100	**$40.00**

*60 Cycle.

No. 968474

Dry Flashover Volt.	75000
Wet Flashover Volt.	45000
Leakage Dist., In.	9½
Dry Arc. Dist., In.	5
Wet Arc. Dist., In.	2
Mech. Str., Lbs.	3000
Size Pin Hole, In.	1
Min. Pin Height, In.	6
Number per Box	25
Sh. Wt. Lbs., per 100	310
Price, Per 100	**$54.00**





No. 968475

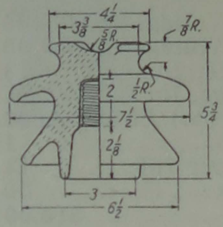
Dry Flashover Volt.	90000
Wet Flashover Volt.	50000
Leakage Dist., In.	13
Dry Arc. Dist., In.	6
Wet Arc. Dist., In.	3
Mech. Str., Lbs.	3000
Size Pin Hole, In.	1
Min. Pin Height, In.	7
Number per Box	25
Sh. Wt. Lbs., per 100	625
Price, Per 100	**$105.00**

Standard color of glaze on all insulators is chocolate brown.

WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS

HIGH-VOLTAGE—TRANSMISSION SERVICE

Radio-Interference-Proof (R.-I.-P.)

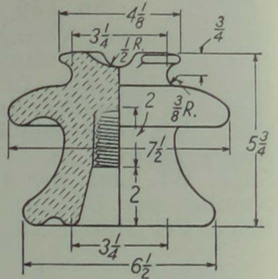


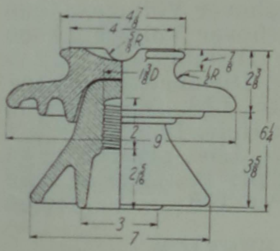
No. 881875

Dry Flashover *V.	95000
Wet Flashover *V.	65000
Leakage Dist., In.	13
Dry Arc. Dist., In.	7
Mech. Str., Lb.	2500
Size Pin Hole, In.*	1⅜
Min. Pin Hght., In.	6
Sh. Wt. Lbs., per 100	975
Price Per 100	**$250.00**

No. 918454

Dry Flashover V.	95000
Wet Flashover V.	60000
Leakage Dist., In.	12
Dry Arc Dist., In.	7
Mech. Str., lbs.	8000
Size Pin Hole, In.	1⅜
Min. Pin Hght., In.	6
Sh. Wt. Lbs., per 100	1200
Price, Per 100	**$270.00**



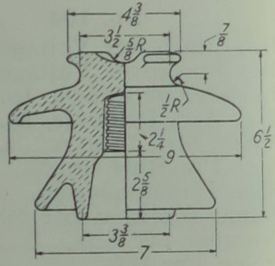


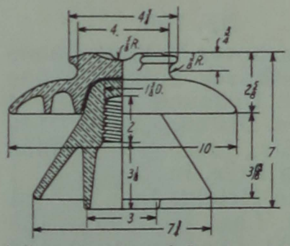
No. 2122†

Dry Flashover *V.	110000
Wet Flashover *V.	75000
Leakage Dist., In.	17
Dry Arc. Dist., In.	8¼
Mech. Str., Lbs.	3000
Size Pin Hole, In.	1⅜
Min. Pin Height, In.	7
Sh. Wt. Lbs., per 100	1200
Price Per 100	**$330.00**

No. 816779

Dry Flashover *V.	110000
Wet Flashover *V.	75000
Leakage Dist., In.	17
Dry Arc. Dist., In.	8¼
Mech. Str., Lbs.	3000
Size Pin Hole, In.	1⅜
Min. Pin Hght., In.	7
Sh. Wt. Lbs., per 100	1200
Price Per 100	**$330.00**





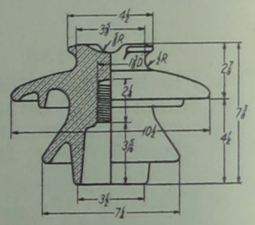
No. 2133†

Dry Flashover *V.	125000
Wet Flashover *V.	80000
Leakage Dist., In.	21
Dry Arc. Dist., In.	9½
Mech. Str., Lbs.	3000
Size Pin Hole, In.‡	1⅜
Min. Pin Hght., In.	8
Sh. Wt. Lbs., per 100	1600
Price, Per 100	**$400.00**

‡Can be furnished with 1⅝-inch porcelain thread.

No. 816625

Dry Flashover *V.	125000
Wet Flashover *V.	80000
Leakage Dist., In.	20
Dry Arc. Dist., In.	9½
Mech. Str., Lbs.	3000
Size Pin Hole, In.*	1⅜
Min. Pin Hght., In.	8
Sh. Wt. Lbs., per 100	1800
Price, Per 100	**$400.00**



*60-cycle.

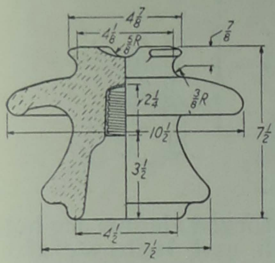
†Emeryville Insulator has center shed flared to diameter 1-inch greater.

Standard color of glaze on all insulators is chocolate brown.

WESTINGHOUSE PORCELAIN PIN-TYPE INSULATORS

HIGH-VOLTAGE—TRANSMISSION SERVICE

Radio-Interference-Proof (R.-I.-P.)



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$\frac{7}{8}$
$2\frac{1}{4}$
$\frac{3}{8}R$
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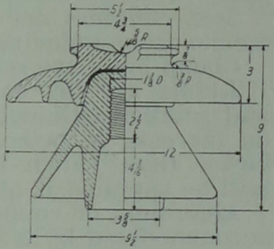
No. 918456

Dry Flashover Volt.	125000
Wet Flashover Volt.	80000
Leakage Dist., In.	18
Dry Arc Dist., In.	9½
Mech. Str., Lbs.	3000
Size Pin Hole	1⅜
Min. Pin Ht., In.	8
Wt. Lbs., Per 100	2400
Price, Per 100	**$440.00**

No. 2144

Dry Flashover *V.	140000
Wet Flashover *V.	95000
Leakage Dist., In.	27
Dry Arc. Dist., In.	11¼
Mech. Str., Lbs.	3000
Size Pin Hole, In.‡	1⅜
Min. Pin Ht., In.	10
Wt. Lbs., Per 100	2500
Price, Per 100	**$600.00**



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12
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$3\frac{3}{8}$
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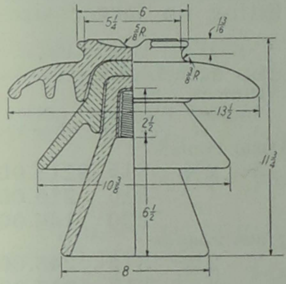

6
$5\frac{1}{4}$
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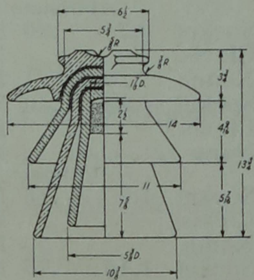
$13\frac{1}{2}$
$11\frac{1}{2}$
$2\frac{1}{2}$
$10\frac{3}{8}$
$6\frac{1}{2}$
8

No. 3255

Dry Flashover *V.	170000
Wet Flashover *V.	125000
Leakage Dist., In.	34
Dry Arc. Dist., In.	14
Mech. Str., Lbs.	3000
Size Pin Hole, In. ‡	1⅜
Min. Pin Height, In.	12
Sh .Wt.Lbs., Per 100	4000
Price, Per 100	**$1000.00**

No. 8329

Dry Flashover *V.	190000
Wet Flashover *V.	145000
Leakage Dist., In.	48
Dry Arc. Dist., In.	17
Mech. Str., Lbs.	3500
Size Pin Hole, In.	1⅜
Min. Pin Height, In.	15
Sh. Wt. Lbs., Per 100	5500
Price, Per 100	**$1800.00**



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$5\frac{1}{4}$
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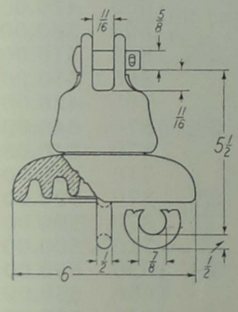
$13\frac{3}{4}$
$5\frac{1}{4}$
$10\frac{1}{4}$

SUSPENSION-STRAIN



$\frac{11}{16}$
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$5\frac{1}{2}$
6
$\frac{1}{2}$
$\frac{7}{8}$
$\frac{1}{2}$

No. 918371
Clevis and Eye Type

Dry Flashover, Kv.	55
Wet Flashover, Kv.	35
Mech. Str., Lbs.	10000
Spacing, In.	5½
Leakage Dist., In.	7½
Dry Arc. Dist., In.	4¼
Wet Arc. Dist., In.	2
Sh. Wt. Lbs., Per 100	675
Price, Per 100	**$265.00**

*60 cycle.

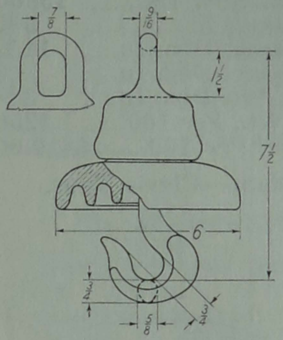
‡Can be furnished with 1⅝-inch porcelain thread.

Standard color of glaze on all insulators is chocolate brown.

WESTINGHOUSE PORCELAIN SUSPENSION-TYPE INSULATORS

SUSPENSION-STRAIN

Radio-Interference-Proof (R.-I.-P.)



$\frac{7}{8}$
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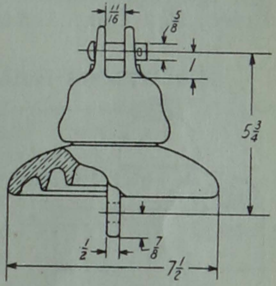
$7\frac{1}{2}$
6
$\frac{5}{8}$
$\frac{3}{4}$

No. 968470
Loop and Hook Type

Dry Flashover, Kv.	55
Wet Flashover, Kv.	35
Mech. Str., Lb.	8M
Spacing, In.	7½
Leakage Dist., In.	7½
Dry Arc. Dist., In.	4
Wet Arc. Dist., In.	1¾
Sh. Wt. Lbs., Per 100	750
Price, Per 100	**$285.00**

No. 570262 Clevis Type

Dry Flashover, Kv.	70
Wet Flashover, Kv.	40
Mech Str., Lb.	15M
Spacing, In.	5¾
Leakage Dist., In.	8¼
Dry Arc. Dist., In.	6½
Wet Arc. Dist., In.	2½
Sh. Wt. Per 100	950
Price, Per 100	**$370.00**



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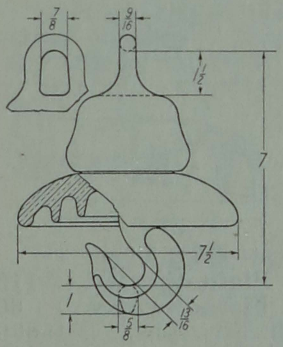

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7
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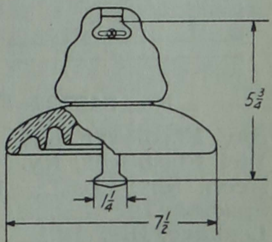
No. 570259
Hook and Eye Type

Dry Flashover, Kv.	70
Wet Flashover, Kv.	38
Mech. Str., Lb.	11M
Spacing, In.	7
Leakage Dist., In.	8¼
Dry Arc. Dist., In.	6
Wet Arc. Dist., In.	2
Sh. Wt. Lbs., Per 100	1000
Price, Per 100	**$390.00**

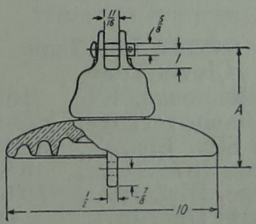
No. 570263 B&S Type

Dry Flashover, Kv.	70
Wet Flashover, Kv.	40
Mech. Str., Lb.	15M
Spacing, In.	5¾
Leakage, Dis., In.	8¼
Dry Arc. Dis., In.	6½
Wet Arc. Dis., In.	2½
Sh. Wt. Lbs., Per 100	925
Price, Per 100	**$370.00**



$5\frac{3}{4}$
$1\frac{1}{4}$
$7\frac{1}{2}$

No. 570265 Clevis Type



$\frac{11}{16}$
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10

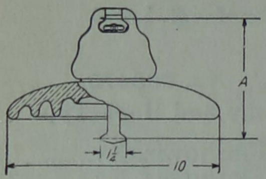
Dry Flashover, Kv.	80
Wet Flashover, Kv.	50
Mech. Str., Lb.	15M
Spacing, In.	5¾
Leakage, Dis., In.	11½
Dry Arc. Dis., In.	8
Wet Arc. Dis., In.	3⅞
Sh. Wt. Lb., Per 100	1250
Price, Per 100	**$420.00**

Standard color of glaze on all insulators is chocolate brown.

WESTINGHOUSE PORCELAIN SUSPENSION-TYPE INSULATORS

Radio-Interference-Proof (R.-I.-P.)

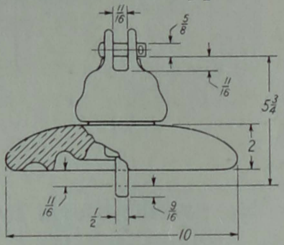
No. 550682 B&S Type



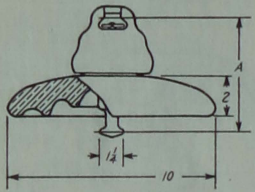
Flashover	Dry 80, Wet 50
Mech. Str., Lbs.	15000
Spacing, In.	5¾
Leakage, Dis., In.	11½
Dry Arc. Dis., In.	8
Wet Arc. Dis., In.	3⅞
Sh. Wt., Per 100	1250
Price, Per 100	**$420.00**

No. 816798 Bullet-Resistant—Clevis Type

Dry Flashover, Kv.	80
Wet Flashover, Kv.	45
Mech. Str., Lbs.	15000
Spacing, In.	5¾
Leakage Dis., In.	9½
Dry Arc. Dis., In.	7¾
Wet Arc. Dis. In.	3¾
Sh. Wt. Lb., Per 100	1450
Price, Per 100	**$440.00**



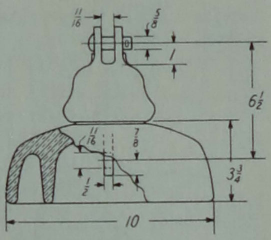
No. 571096 Bullet-Resistant—B&S Type



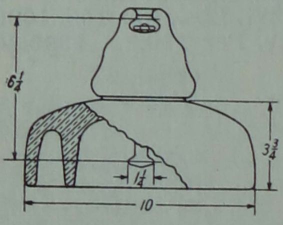
Flashover	Dry 80, Wet 45
Mech. Str., Lbs.	15000
Spacing, In.	5¾
Leakage Dis., In.	9½
Dry Arc. Dis., In.	7¾
Wet Arc. Dis., In.	3¾
Sh. Wt. Lb., Per 100	1450
Price, Per 100	**$440.00**

No. 845655 Fog Type—Clevis Type

Dry Flashover, Kv.	110
Wet Flashover, Kv.	60
Mech. Str., Lbs.	15000
Spacing, In.	6½
Leakage, Dis., In.	15½
Dry Arc. Dis., In.	9½
Wet Arc. Dis., In.	3½
Sh. Wt., Per 100	1750
Price, Per 100	**$620.00**



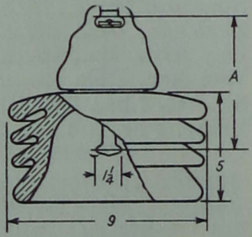
No. 845656 Fog Type—B&S Type

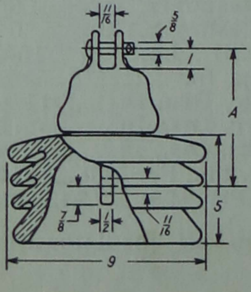


Dry Flashover, Kv.	110
Wet Flashover, Kv.	60
Mech. Str., Lbs.	15000
Spacing, In.	6½
Leakage, Dis., In.	15½
Dry Arc. Dis., In.	9½
Wet Arc. Dis., In.	3½
Sh. Wt. Per 100	1735
Price, Per 100	**$620.00**

No. 845721 Fog Type—B&S Type

Dry Flashover Kv.	105
Wet Flashover, Kv.	60
Mech. Str., Lbs.	15000
Spacing, In.	6½
Leakage, Dis., In.	19½
Dry Arc. Dis., In.	10
Wet Arc. Dis., In.	3
Sh. Wt., Per 100	1780
Price, Per 100	**$620.00**



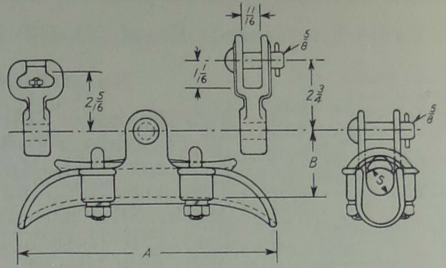


No. 845722 Fog Type Clevis Type

Dry Flashover, Kv.	105
Wet Flashover, Kv.	60
Mech. Str., Lbs.	15000
Spacing, In.	6½
Leakage, Dis., In.	19½
Dry Arc. Dis., In.	10
Wet Arc. Dis., In.	3
Sh. Wt., Per 100	1795
Price, Per 100	**$620.00**

WESTINGHOUSE TRANSMISSION LINE FITTINGS

BTC SUSPENSION CLAMPS



Copper-bearing steel drop-forged clamps are hot-dip galvanized, high-strength and lightweight. Suitable for all classes of service on copper, A.C.S.R. or composite conductors.

Seat contours are carefully designed and free from corona-inducing sharp edges.

Clamp bolts are separate from the keeper.

J-bolts are for conductors of 1-inch diameter and smaller although U-bolts can be supplied at an increase in price. U-bolts are for conductors larger than 1-inch in diameter although J-bolts will be supplied if preferred.

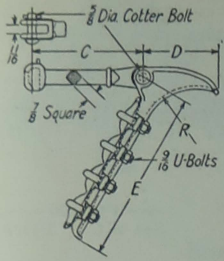
Aluminum or copper liners reduce size of cable accommodated by 0.1-inch can be furnished at an addition in price.

Arcing horns integral with the keeper on smaller sizes and attached to the fitting on larger sizes are available.

Type of Connector Included	Cable Diam. Inches "S"		FORGED STEEL CLAMPS				
	Max.	Min.	Cat. No.	Dimens. Inches A	B	Shpg. Wt.Lbs. Per 100	Price Per 100
Ultimate Strength 15000 Pounds							
Socket	.46	.20	**BT6200**	7	2¼	315	**$215.00**
Clevis			**BT6230**			315	**215.00**
None			**BT6240**			230	**145.00**
Ultimate Strength 17000 Pounds							
Socket	.6	.30	**BT6201**	7	2¼	315	**245.00**
Clevis			**BT6231**			315	**245.00**
None			**BT6241**			230	**175.00**
Ultimate Strength 18000 Pounds							
Socket	.7	.30	**BT6202**	8	2⅜	480	**270.00**
Clevis			**BT6232**			480	**270.00**
None			**BT6242**			420	**200.00**
Socket	.82	.40	**BT6203**	8	2⅜	480	**310.00**
Clevis			**BT6233**			480	**310.00**
None			**BT6243**			420	**240.00**
Ultimate Strength 25000 Pounds							
Socket	1.0	.75	**BT6204**	10	2½	650	**370.00**
Clevis			**BT6234**			650	**370.00**
None			**BT6244**			495	**300.00**
Socket	1.15	.75	**BT6205**	10	2½	655	**410.00**
Clevis			**BT6235**			655	**410.00**
None			**BT6245**			500	**340.00**
Socket	1.27	.75	**BT6255**	10	2½	655	**470.00**
Clevis			**BT6265**			655	**470.00**
None			**BT6275**			500	**380.00**
Socket	1.375	.80	**BT6206**	10	2¾	865	**510.00**
Clevis			**BT6236**			865	**510.00**
None			**BT6246**			705	**420.00**
Socket	1.45	.90	**BT6257**	10	2¾	870	**540.00**
Clevis			**BT6267**			870	**540.00**
None			**BT6277**			710	**450.00**
Socket	1.6	1.0	**BT6207**	10	2¾	870	**590.00**
Clevis			**BT6237**			870	**590.00**
None			**BT6247**			710	**500.00**
Socket	1.8	1.2	**BT6208**	12	3⅛	1050	**650.00**
Clevis			**BT6238**			1050	**650.00**
None			**BT6248**			865	**560.00**
Socket	2.0	1.3	**BT6209**	12	3⅜	1130	**750.00**
Clevis			**BT6239**			1130	**750.00**
None			**BT6249**			935	**660.00**
Socket	2.25	1.5	**BT6210**	12	3¾	1360	**870.00**
Clevis			**BT6280**			1360	**870.00**
None			**BT6290**			1150	**780.00**

WESTINGHOUSE TRANSMISSION LINE FITTINGS

BT FORGED STEEL STRAIN CLAMPS



Suitable for use with copper, A.C.S.R. or composite conductors. BT clamps are trunnion type, forged from copper-bearing steel and hot-dip galvanized. The three smaller sizes have 25,000-lb. ultimate strength and the three larger sizes 35,000-lb. Arcing horns can be attached to the square shank of the connector.

Type of Connector	Cable Dia. Max.	Cable Dia. Min.	Cat. No.	Price Per 100	Dimens., In. C	D	E	R	No. of U-bolts	Wt. Lb. Per C
Socket	0.55	0.19	**BT-5000**	**$520**	5¾	4	6¾	2½	2	525
Clevis			**BT-5010**	**450**						
Socket	0.55	0.19	**BT-5040***	**820**	5¾	4	6¾	2½	2	525
Clevis			**BT-5050***	**750**						
Socket	0.68	0.40	**BT-5001**	**720**	5¾	5½	12½	4¼	4	1040
Clevis			**BT-5011**	**650**						
Socket	0.83	0.40	**BT-5002**	**890**	5¾	5½	12½	4¼	4	1050
Clevis			**BT-5012**	**820**						
Socket	0.96	0.82	**BT-5003**	**1050**	7¾	6½	14⅜	6⅞	4	1475
Clevis			**BT-5013**	**980**						
Socket	1.10	0.82	**BT-5004**	**1880**	7¾	6½	14⅜	6⅞	4	1480
Clevis			**BT-5014**	**1790**						
Socket	1.28	1.10	**BT-5005**	**2250**	7¾	7⅛	17¾	7¾	5	2275
Clevis			**BT-5015**	**2160**						

*Heat treated and transverse ribs in conductor seat for dead-ending steel or other high strength cables.

DISTRIBUTION CLAMP

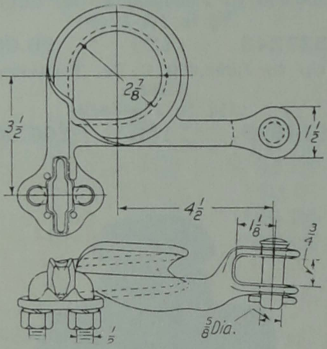
No. 881895 Strain Clamp

For all .162 to .55-inch conductors.

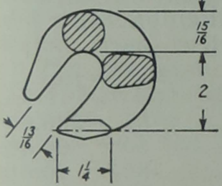
Ultimate strength, 10,000 pounds.

Packed weight, 325 pounds per 100.

Price, per C....**$230.00**



BALL- AND EYE-HOOKS



No. 533780 Ball-Hook

Self-locking type. Strength, 20,000 pounds.

Shipping weight, 110 pounds.

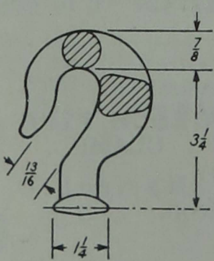
Price, per 100....................**$60.00**

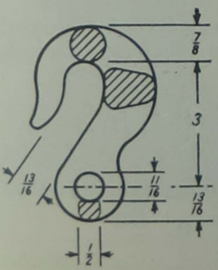
No. 570943 Ball-Hook

Non-rotating type. Strength, 18,000 pounds.

Shipping weight, 125 pounds per 100.

Price per 100....................**$80.00**





No. 570942 Eye-Hook

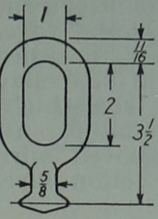
Strength, 17,000 pounds.

Shipping weight, 120 pounds per 100.

Price per 100....................**$80.00**

WESTINGHOUSE TRANSMISSION LINE FITTINGS

MISCELLANEOUS FITTINGS



No. BT-3014 Ball-Eye

Strength 20,000 pounds. Shipping weight, 100 lbs. per 100.

This fitting can be heat-treated to increase ultimate strength approximately 50 per cent.

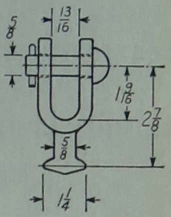
Price per 100....................**$80.00**

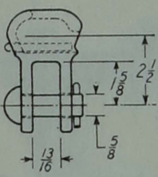
No. BT-3055 Ball-Clevis

Strength 20,000 pounds. Specify "Heat-treated" when extra strength is required.

Weight 90 lbs. per 100.

Price per 100....................**$90.00**





No. 550511 Socket-Clevis

Strength 20,000 pounds. Specify "Heat-treated" when extra strength is required.

Shipping weight 150 lbs. per 100.

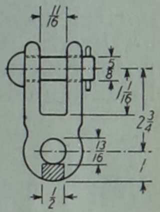
Price per 100....................**$100.00**

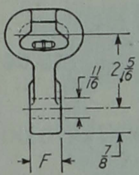
No. BT-3061 Clevis-Eye

Strength 20,000 pounds. Specify "Heat-treated" when extra strength is required.

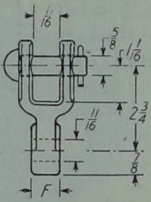
Shipping weight 160 lbs. per 100.

Price per 100....................**$70.00**





Socket-Eye



Clevis-Eye

Socket- and Clevis-Eyes

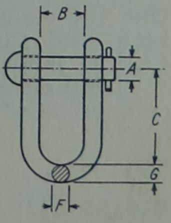
These fittings can be heat-treated to increase ultimate strength approximately 50 per cent. Specify "Heat-treated" when extra strength is required.

"F" Inches	Strength Lbs.	Wt. Lbs. Per C	Socket-Eye Cat. No.	Socket-Eye Price Per C	Clevis-Eye Cat. No.	Clevis-Eye Price Per C
½	20000	125	**514586**	**$70**	**437080**	**$70**
¾	25000	140	**918234**	**70**	**918237**	**70**
1	25000	155	**918235**	**70**	**550742**	**70**
1¼	25000	170	**550243**	**90**	**550743**	**90**
1½	25000	185	**550508**	**90**	**550744**	**90**
1¾	25000	200	**550509**	**90**	**550745**	**90**
2 1/16	25000	215	**550510**	**90**	**550746**	**90**
½	20000	250	....	....	**BT3062***	**170**

*Has 5½-inch section length instead of 2¾-inch.

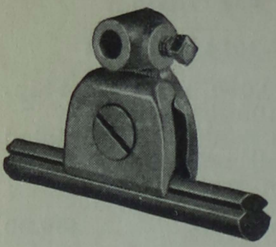
Type B Shackle

Cat. No.	Dimens., In. A	B	C	F	G	Wt. Lb.	Price Per C
	Strength, 20,000 Pounds						
BT-3017	9/16	¾	2	½	½	75	**$60.00**
	Strength, 25,000 Pounds						
BT-3018	¾	1 1/16	2⅜	⅝	⅝	135	**130.00**
	Strength, 36,000 Pounds						
BT-3026	⅞	⅞	3⅜	⅝	¾	230	**180.00**



WESTINGHOUSE MINE CLAMPS

CURRENT TAP



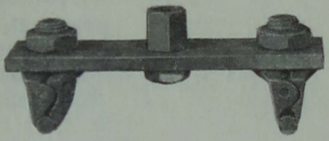
Used for attaching lighting or other small current circuits to the trolley wire. Can be attached to either grooved or Fig 8. trolley wire. Made from high-grade bronze alloy. All clamps for grooved wire will fit No. 9 section wire.

Cat. No.	Description	Feeder Size	Wt. Lbs. Per 100	Price Per 100
1037153	0-6/0 G. or F. 8	0 to 2	40	$42.00

COMBINATION FEEDER AND TROLLEY CLAMP

Malleable Iron—Galvanized

Patented

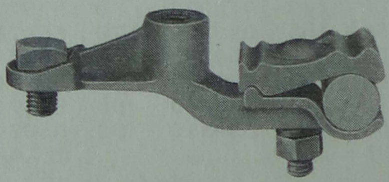


For suspending feeder line and trolley wire in the same horizontal plane from one hanger. Either wire may be repaired or adjusted independently. Clearance from center to center of wires is 6 inches. This dimension can be changed since supporting steel bar can be made any length. Overall height from center of trolley wire to top of boss, 2⅞ inches. Clamps similar to Archi type. Boss tapped for ⅝-inch hanger studs.

Cat. No.	Description	Wt. Lbs. Per 100	Price Per 100
779971	0-6/0 G. and F.8 trolley and 0-4/0 round feeder..	350	$165.00
816191	0-6/0 G. and F.8 trolley and ½ to ⅞ in. dia. feeder	375	165.00
816192	0-6/0 G. and F.8 trolley and ¾ to 1$\frac{3}{16}$ inch dia. feeder	400	165.00
816193	0-6/0 G. and F.8 trolley and 1⅛ to 1⅝ inch dia. feeder	425	170.00

FEEDER CLAMP AND ADAPTER FOR TROLLEY CLAMP

Malleable Iron—Galvanized



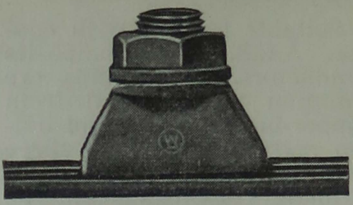
For suspending feeder cable and trolley wire in same horizontal plane from one supporting hanger. One end clamps to feeder wire. Other end has ⅝-inch stud for attaching standard trolley clamp. Casting tapped to fit standard ⅝-inch stud.

Clamping piece is reversible for use with smaller wire sizes.

Cat. No.	Description	Wt. Lbs. Per 100	Price Per 100
816196	4/0 to 1,000,000 cm cable	150	$105.00

WESTINGHOUSE MINE CLAMPS

Malleable Iron—Galvanized



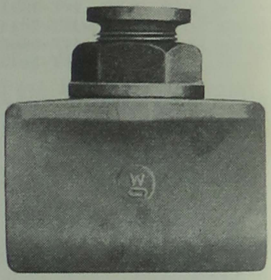
ARCHI LIGHT-DUTY TYPE

Length, 2⅜ inches; height, 2 inches. Diameter of tap, ⅝-inch.

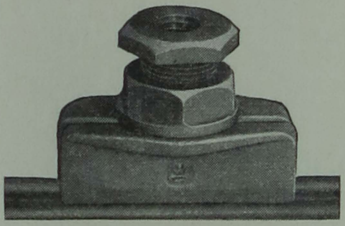
Cat. No.	Size and Type of Wire	Per 100 Net Wt.	Per 100 Price
595972	00 to 000000 Grooved and Fig. 8 M. I.	68	$50.00
883038	00 to 000000 Grooved and Fig. 8 M.I.—For supporting Fire Hose as a Guard board	70	60.00

ARCHI CLAMP FOR FEEDER CABLE

Heavy jaws 3 inches long, furnish a good seat for the cable. The clamping leverage assures a firm grip on the cable.



Cat. No.	Wt. Lbs. Per 100	Price Per 100
0000 to 500,000 C. M. Cable (½ to ⅞-Inch)		
527239	100	$85.00
500,000 to 1,000,000 C. M. Cable (¾ to 1$\frac{3}{16}$-Inch)		
527240	125	90.00
Up to 1,000,000 C. M. Insulated Cable (1⅛ to 1⅝-Inch)		
524699	150	105.00



ARCHI HEAVY-DUTY TYPE

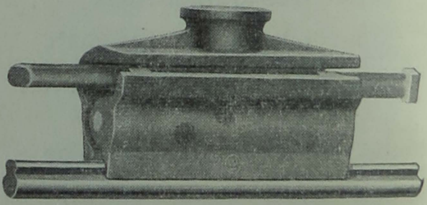
Great holding power; wire grips entire length of jaw.

Malleable iron. No. 437920, aligning type 2$\frac{13}{16}$ height. No. 437919, non-aligning type 2$\frac{9}{16}$ height.

Cat. No.	Size and Type of Wire	Per 100 Net Wt.	Per 100 Price
437920	0 to 000000 Fig. 8	85	$66.00
477428	0 to 0000 Round	85	66.00
437919	0 to 000000 Fig. 8	85	60.00
477427	0 to 0000 Round	85	60.00

WEDGE TYPE CLAMP

Malleable iron.

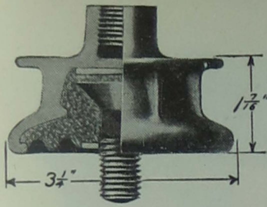


For situations where clamps have to be removed frequently. Driven tight with hammer, no wrench required.

Cat. No.	Type of Wire Size and	Price Per 100
Non-Aligning, 3⅝" L., 2 3/16" H.		
492281	No. 00 to 000000 Gr. & Fig. 8	$63.00
Aligning, 4⅛" L., 2" H.		
822769	No. 00 to 0000 Grooved	66.00

WESTINGHOUSE MINE HANGERS

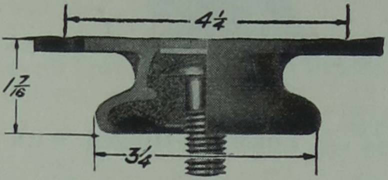
Malleable Iron—Galvanized



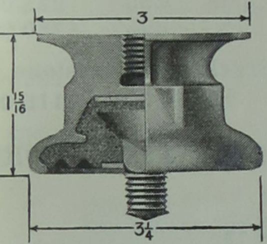
Type BF Rock Hangers

Mfrs. No.	Diam. Body In.	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
207352	3¼	50	150	$90.00
568727	3	50	140	85.00
568728	3¼	50	160	95.00

Type BL-3 Timber Hangers



Mfrs. No.	Diam. Body Inches	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
207353	3¼	50	140	$90.00
227139	3½	50	165	95.00

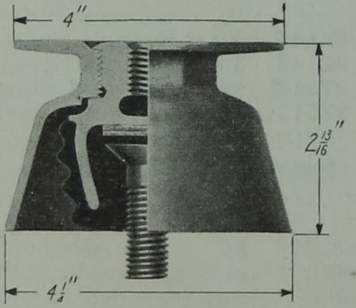


Types LH and LJ Combination Hangers

Mfrs. No.	Type	Diam. Body Inches	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
246702	LH	3¼	50	160	$ 95.00
671014	LH	3	50	140	90.00
445388	LJ	3½	50	175	105.00
529857	LJ	3½	50	175	105.00

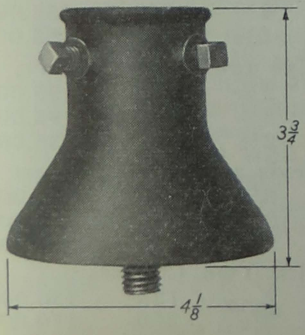
Type WS Watershed Hangers

The shell casting acts as a watershed and prevents the mine water from dripping on the insulator. An air space is provided between the shell casting and the insulator.



Mfrs. No.	Type	Diam. Body Inches	Wt. Lbs. Per 100	Price Per 100
393780	WS Hanger	4¼	325	$150.00
674544	WS Pipehanger	3⅝	250	133.50

Standard package 25.

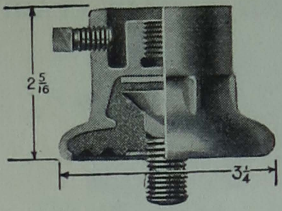


Type AM-1 Hanger For 1¼ Inch Pipe

Mfrs. No.	Std. Pkg.	Wt.Lb. Per 100	Price Per 100
296305	50	262	$175.00

WESTINGHOUSE MINE HANGERS

Malleable Iron—Galvanized

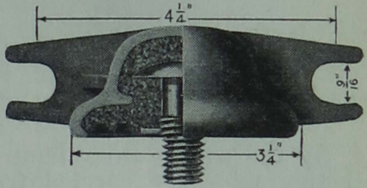


Type JW Hanger

Mfrs. No.	Std. Pkg.	Wt. Lb. Per 100	Price Per 100
246704	50	170	$120.00

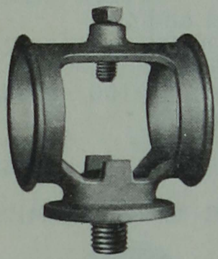
Type TH Hanger

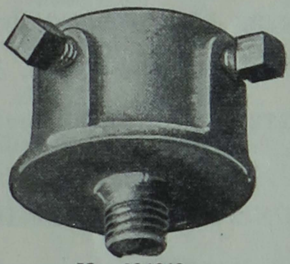
Mfrs. No.	Wt.Lb. Per 100	Price Per 100
246708	155	$115.00



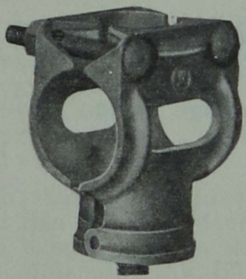
PIPE ADAPTERS FOR TYPE LH AND LJ COMBINATION MINE HANGERS

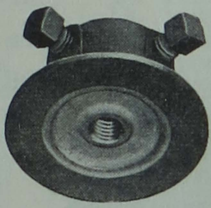
Malleable Iron—Galvanized


No. 146066

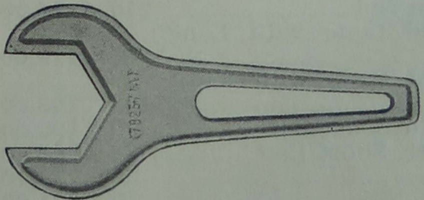

No. 294319

Mfrs. No.	Description	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
146066	For 1½-Inch Horizontal Pipe	25	180	$72.00
294319	For 1¼-Inch Vertical Pipe	25	70	60.00


No. 437921


No. 537648

Mfrs. No.	Description	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
437921	Combination Pipe Hanger for 1¼-Inch Vertical or 1¼-Inch and 1½-Inch Horizontal Pipe	25	200	$85.00
537648	For 1¼-Inch Vertical Pipe	25	85	60.00



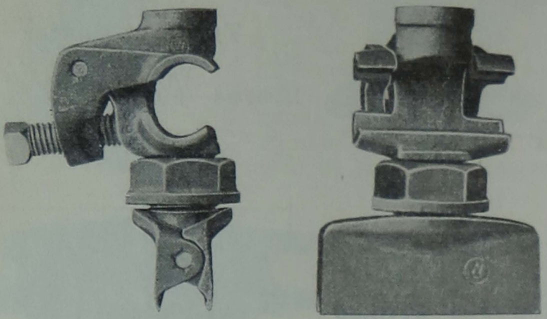
TYPE BF WRENCH

Mfrs. No.	Description	Appx.Net Wt.Lb.	Price Each
664889	For BF, LH and JW Hangers	1¼	$0.50

WESTINGHOUSE MINE CLAMPS

Malleable Iron—Galvanized

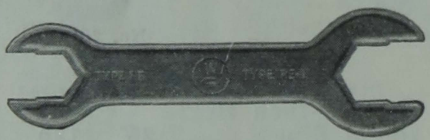
COMBINATION FEEDER AND TROLLEY CLAMP



By the use of this clamp the feeder cable and trolley wire are carried from the same hanger. The feeder cable is suspended over the trolley. The cable and trolley wire may be stretched and clamped independent of each other. This clamp is $4\frac{1}{16}$ inches in height.

Cat. No.	Description	Wt. Lbs. Per 100	Price Per 100
532326	0 to 000,000 Grooved and 8 Trolley Wire and 0000 to 500,000 C. M. Feeder Cable	150	$135.00
532327	00 to 0000 Round Trolley and 0000 to 500,000 C. M. Feeder Cable	150	135.00

UNIVERSAL WRENCH FOR MINE CLAMPS

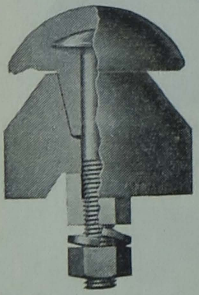


Cat. No.	Description	Wt.Lb. Each	Price Each
296497	Malleable Iron	1	$0.50

WESTINGHOUSE CAP AND CONE INSULATORS

750 Volts—Test Voltage 10,000

COKE OVEN TYPE

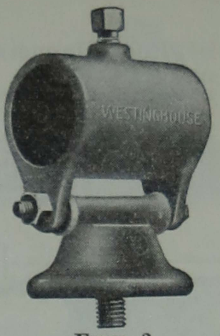


This insulator consists of a special heat resisting cap and cone with extra creepage distance, and an extension nut for holding angle irons, etc. It is especially applicable about coke ovens and industrial plants and can be used in connection with any type A suspension body.

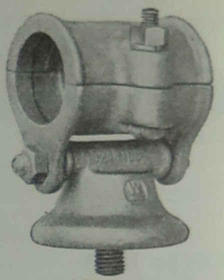
Mfrs. No.	Description	Wt. Lbs. Per 100	Price Per 100
408949	Cap and Cone with Spacing Nut, Lock Washer and Hexagon Nut	210	$214.00
393304	Cap and Cone with Long Bolt	160	178.00
393308	Cap and Cone with Short Bolt	130	165.00
393305	Cap with Long Bolt	90	100.00
393309	Cap with Short Bolt	80	86.00
393306	Cone	50	79.00
393313	Spacing Nut	30	21.00
393310	Insulated Bushing	20	40.00
393311	Insulated Spacer	15	35.00

WESTINGHOUSE TYPE B SUSPENSIONS

TYPE B PIPE BRACKET SUSPENSIONS



Form 2



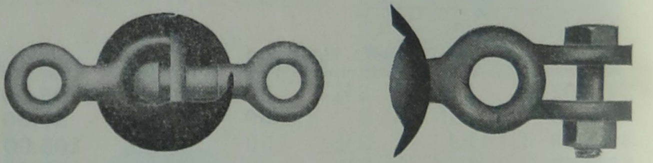
Form 4

Form 2—Hinged With Sleeve Clamp

Mfrs. No.	Description	Size Pipe Inches	Diam. Stud Inches	Wt.Lb. Per 100	Price Per 100
52596	Galvanized	1½	⅝	360	$225.00
52598	Galvanized	2	⅝	400	250.00
Form 4—Hinged With Split Clamp					
182360	Galvanized	1½	⅝	355	225.00
182354	Galvanized	2	⅝	395	250.00
Insulated Bell for Pipe Bracket Suspensions					
227138	Galvanized	......	⅝	150	115.00

WESTINGHOUSE STRAIN INSULATORS

GLOBE—600 Volts



Cat. No.	Description	*Size In.	Wt. Lb. Per 100	Price Per 100
92146	Two ½ Inch Eyes	3¾	70	$70.00
92147	Two ⅝ Inch Eyes	$4\frac{5}{16}$	105	90.00
97512	With Eye and Clevis	5	100	85.00
97513	With Eye and Clevis	$5\frac{11}{16}$	132	105.00

*Distance between centers of eyes or eye and clevis.

DURO MOLDED STRAIN INSULATORS

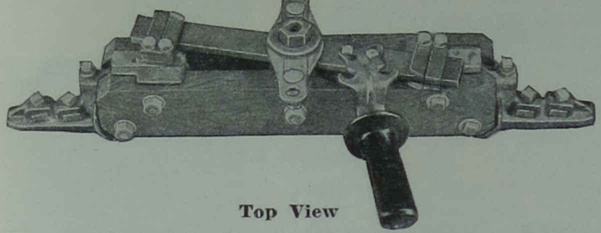
750 Volts D. C.

Cat. No.	Diam. of Body, In.	Wt. Lbs. Per 100	Price Per 100
With Two Eyes			
311909	2	115	$100.00
324061	2	120	100.00
324053	2½	215	140.00
324058	2½	220	140.00
With Eye and Clevis			
311911	2	125	115.00
324062	2	130	115.00
324055	2½	240	155.00
324059	2½	245	155.00
With Eye and Tapped Insert			
376023	2⅛	100	95.00
376025	2⅛	100	95.00
376027	2½	200	135.00
With Clevis and Tapped Insert			
376024	2⅛	115	110.00
376026	2⅛	115	110.00
376028	2½	230	150.00
With Two Clevises			
324060	2	135	130.00
324057	2½	250	170.00

WESTINGHOUSE SECTION INSULATORS

DOUBLE-GAP SECTION INSULATOR—MINING

With Switch—600 Volts—Heavy-Duty Type



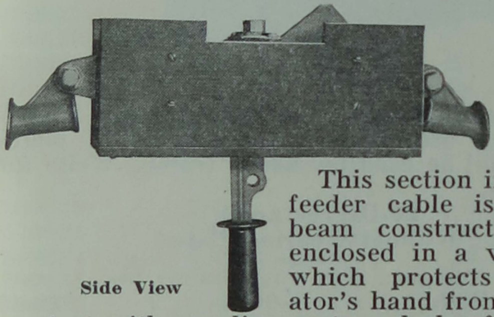
Top View

For use in mines having an operating voltage of 600 volts or less. Overall length, 23 inches; height, 6 inches; width, 6 inches.

Cat. No.	Description	Wt. Lbs.	Price Each
671083	2-4/0 R. G. or Fig. 8	15.5	**$21.50**
671084	2-4/0 R. G. or Fig. 8 with Terminal on Blade	15.5	**22.50**
671085	2-6/0 G. or Fig. 8 and No. 9 RTW	15.5	**23.65**
671086	2-6/0 G. or Fig. 8 and No. 9 RTW with Terminal on Blades	15.5	**24.65**
970583	2-4/0 G., F. 8 and No. 9 RTW	16	**21.50**
945513	2-6/0 G., F. 8 and No. 9 Sec. Wire	16	**23.65**

SECTION INSULATOR FOR FEEDER CABLE

Up to 1,000,000 C. M.



Side View

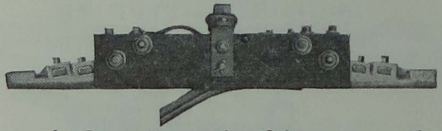
This section insulator for feeder cable is of double beam construction. It is enclosed in a wooden box which protects the operator's hand from coming in contact with any live parts and also from the arc if switch is broken under load. Overall length, 27½; overall height, 6¾; depth, 6½ inches.

Cat. No.	Description	Wt. Lbs.	Price Each
477587	4/0 Cable Only (light type)	18	**$25.00**
445501	For Cable up to 500,000 c.m.	24	**32.00**
445502	For Cables from 500,000 c.m. to 1,000,000 c.m.	26	**32.00**
445503	4/0 to 500,000 c.m., Terminal only		**3.00**
445504	500 M to 1000 Mcm., Terminal only		**3.00**

Complete with terminals.

AUTOMATIC SECTION INSULATOR

750 Volts

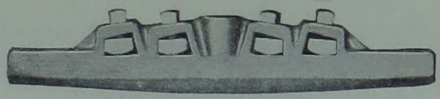


Being entirely automatic this automatic section insulator is perfectly suited for use around tipples, shaft bottoms, empty and loaded side tracks, underground machine shops, car barns and other places where power is used only by locomotive. Can be furnished with rotating boss or two end lugs. Overall length, 25⅛ inches; height, 5⅛ inches; depth 3⅝ inches.

Cat. No.	Description	Wt. Lbs.	Price Each
	With Rotating Boss		
356385	00-4/0 R. G. or Fig 8	11¼	**$27.00**
	With Two Lugs		
356389	00-4/0 R. G. or Fig. 8	11¼	**27.00**

WESTINGHOUSE TROLLEY WIRE SPLICERS

TYPE SL SET-SCREW SPLICER



10-Inch Splicer without Boss

The type SL set-screw splicer is made of a high grade, tough quality of bronze. Ease of installation is combined with high mechanical strength and a low-resistance joint electrically.

The wire groove in this splicer is straight and it may be slipped entirely over one wire when making a splice or cutting out slack.

The approach lip turns upward and is not necessary to peen them over. This shortens the time of installation of the splicer. As either an emergency or permanent splicer, this type cannot be surpassed.

Cat. No.	Description	Lgth. In.	Wt. Lbs. Per 100	Price Per 100
375668	00 to 0000 round, or Fig. 8 without boss	10	135	**$220.00**
525447*	00 and 0000 Round Grooved or Fig. 8	10	135	**240.00**
530736	00 and 000000 Fig. 8 and without boss	10	140	**275.00**
463466	Bronze nut only			on request
1090607	7/16x1¼ set screw only			on request

*Complete with ⅝-inch tapped boss.

WESTINGHOUSE SPLICING SLEEVES

STANDARD

Brass

Cat. No.	Size of Wire Round	Size of Wire Grooved	Dimen. Inches Lgth.	Dimen. Inches Dia.	Wt. Lbs. Per 100	Price Per 100
87514	0	....	10	⅝	48	**$132.00**
87513	0	....	15	⅝	75	**180.00**
87516	00	0	10	11/16	45	**132.00**
87515	00	0	16	11/16	76	**200.00**
141145	00	0	18	11/16	84	**270.00**
92232	000	00	11	¾	70	**200.00**
87517	000	00	18	¾	115	**300.00**
92233	0000	000	12	⅞	104	**270.00**
87518	0000	000	20	⅞	174	**420.00**
92234	....	0000	12	⅞	104	**270.00**
87519	....	0000	20	⅞	164	**420.00**

EMERGENCY

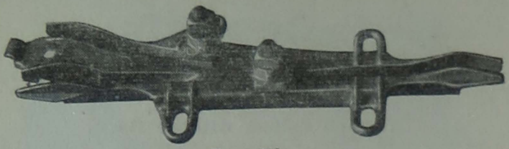
Made of Extra Strong Bronze

Cat. No.	Size of Wire Round	Size of Wire Grooved	Dimen. Inches Lgth.	Dimen. Inches Dia.	Wt. Lbs. Per 100	Price Per 100
247941	0	....	10	11/16	69	**$115.00**
247942	00	0	10	¾	70	**125.00**
247943	000	00	10	13/16	83	**145.00**
439192	0000	0000	10	⅞	120	**150.00**
247945	0000	0000	15	15/16	137	**200.00**
247947	00 Fig. 8		10	....	63	**125.00**
439193	0000 Fig. 8		10	....	100	**155.00**
247949	0000 Fig. 8		15	....	159	**200.00**
140183	Extra Steel Wedges		....	....	......	**6.00**

WESTINGHOUSE TROLLEY FROGS

TYPE CF SHORT FROG

With Bayonet Approaches



Top View

Where a short frog is desired, use Type CF for small radius curves in mines, industrial installations, and on some railway properties. Flanges of trolley wheel never travel on pan of frog. Current is collected in groove of wheel. Approaches are bronze bayonet-type. They are installed quickly without a wrench and are held in place by tension of wire. Catalog number does not include the deflector plate.

15-Degree—Malleable Iron

Short Approaches

Cat. No.	Turn-Out	Size and Type of Wire	Length In. O'all	Net Wt.Lb.	Price Each
437775	Right	00 R. or G.	23¼	9	**$7.60**
437776	Right	000 R. or G.	23¼	9	**7.60**
437777	Right	0000 R. or G.	23¼	9	**7.60**
437778	Left	00 R. or G.	23¼	9	**7.60**
437779	Left	000 R. or G.	23¼	9	**7.60**
437780	Left	0000 R. or G.	23¼	9	**7.60**
437781	Right	00 Fig. 8	23¼	9	**7.60**
437782	Right	000–0000 Fig. 8	23¼	9	**7.60**
437783	Left	00 Fig. 8	23¼	9	**7.60**
437784	Left	000–0000 Fig. 8	23¼	9	**7.60**
		Long Approaches			
439102	Right	00 R. or G.	26½	9¼	**8.20**
439103	Right	000 R. or G.	26½	9¼	**8.20**
439104	Right	0000 R. or G.	26½	9¼	**8.20**
439105	Left	00 R. or G.	26½	9¼	**8.20**
439106	Left	000 R. or G.	26½	9¼	**8.20**
439107	Left	0000 R. or G.	26½	9¼	**8.20**
437882	Malleable iron deflector plate for use with 15° frogs			1/3	**.45**

20-Degree—Malleable Iron

Short Approaches

Cat. No.	Turn-Out	Size and Type of Wire	Length In. O'all	Net Wt.Lb.	Price Each
437787	Right	00 R. or G.	22¼	....	**7.10**
437788	Right	000 R. or G.	22¼	....	**7.10**
437789	Right	0000 R. or G.	22¼	....	**7.10**
437790	Left	00 R. or G.	22¼	....	**7.10**
437791	Left	000 R. or G.	22¼	....	**7.10**
437792	Left	0000 R. or G.	22¼	....	**7.10**
437793	Right	00 Fig. 8	22¼	....	**7.10**
437794	Right	000–0000 Fig. 8	22¼	....	**7.10**
437795	Left	00 Fig. 8	22¼	....	**7.10**
437796	Left	000–0000 Fig. 8	22¼	....	**7.10**

15-Degree—Bronze

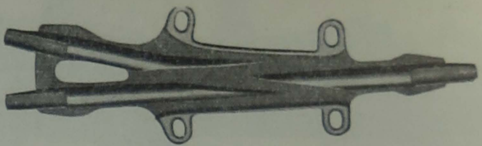
Short Approaches

Cat. No.	Turn-Out	Size and Type of Wire	Length In. O'all	Net Wt.Lb.	Price Each
439070	Right	00 R. or G.	23¼	10	**$11.40**
439071	Right	000 R. or G.	23¼	10	**11.40**
439072	Right	0000 R. or G.	23¼	10	**11.40**
439073	Left	00 R. or G.	23¼	10	**11.40**
439074	Left	000 R. or G.	23¼	10	**11.40**
439075	Left	0000 R. or G.	23¼	10	**11.40**
532269	Right	00 Fig. 8	23¼	10	**11.40**
532270	Right	000–0000 Fig. 8	23¼	10	**11.40**
532271	Left	00 Fig. 8	23¼	10	**11.40**
532272	Left	000–0000 Fig. 8	23¼	10	**11.40**
		Long Approaches			
439076	Right	00 R. or G.	26½	10¼	**12.00**
439077	Right	000 R. or G.	26½	10¼	**12.00**
439078	Right	0000 R. or G.	26½	10¼	**12.00**
439079	Left	00 R. or G.	26½	10¼	**12.00**
439080	Left	000 R. or G.	26½	10¼	**12.00**
439081	Left	0000 R. or G.	26½	10¼	**12.00**

WESTINGHOUSE TROLLEY FROGS

TYPE CF SHORT FROG

Malleable Iron, Galvanized

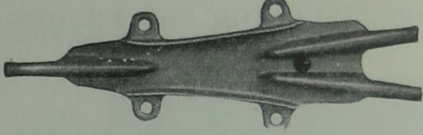


Bottom View

Cat. No.	Turn-out	Size and Type of Wire	Length In. O'all	Net Wt.Lb.	Price Each
530737	Right	2—6/0 Grooved*	24	9.5	**$8.36**
664737	Right	2—6/0 Grooved†	24	9.5	**8.36**
598602	Right	2—6/0 Fig. 8*	24	9.5	**8.36**
664738	Right	2—6/0 Fig 8†	24	9.5	**8.36**
793857	Right	3—6/0 Grooved	24	9.5	**8.36**
793858	Right	3—6/0 Fig. 8	24	9.5	**8.36**
530738	Left	2—6/0 Grooved*	24	9.5	**8.36**
664740	Left	2—6/0 Grooved†	24	9.5	**8.36**
598603	Left	2—6/0 Fig. 8*	24	9.5	**8.36**
664741	Left	2—6/0 Fig. 8*	24	9.5	**8.36**
793859	Left	3—6/0 Grooved	24	9.5	**8.36**
793860	Left	3—6/0 Fig. 8	24	9.5	**8.36**

*Complete with 1—4/0 grooved approach.
†Complete with 1—4/0 Fig. 8 approach.
Also made in bronze.

BRONZE TROLLEY FROGS



Bottom View

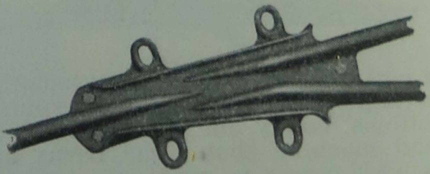
These frogs are made of high strength copper alloy. They are listed without wearing plates which should be used for heavy traffic. Write for information.

20-Degree Angle Without Wearing Plate

Cat. No.	Turnout	Size of Wire	Net Wt. Lbs.	Price Each
249377	Right	0–00	7	**$8.40**
249378	Right	000–0000	7½	**9.00**
249379	Left	0–00	7	**8.40**
249380	Left	000–0000	7½	**9.00**
249381	V-Shape	0–00	7	**8.40**
249382	V-Shape	000–0000	7½	**9.00**
		15-Degree Angle		
249383	Right	0–0000	8	**10.50**
249384	Left	0–0000	8	**10.50**
249385	V-Shape	0–0000	8	**10.50**
		8-Degree Angle		
249386	Right	0–0000	9	**13.00**
249387	Left	0–0000	9	**13.00**
249388	V-Shape	0–0000	9	**13.00**

15-DEGREE—TYPE RR

Malleable Iron, Galvanized

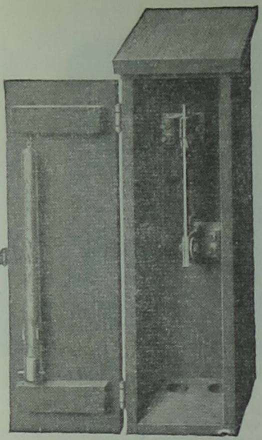


Bottom View

Type RR is for use on 000000 trolley wire, either grooved or Fig. 8. It can also be used with No. 9 Section trolley wire. Attaches with clamps without bending wire.

Cat. No.	Turnout	Length In., O'all	Net Wt. Lbs.	Price Each
1037050	Left	19¾	10	**$7.60**
1037049	Right	19¾	10	**7.60**

WESTINGHOUSE LINE SECTION SWITCHES



1500-Volt Switch in Box

These are single-pole single-throw front-connected knife switches with quick-break contacts. They are mounted on slate bases and are enclosed in wooden boxes — the 750 volt switch is also furnished without the box. The terminals are arranged to take leads from the bottom. The switches are not fused.

The 1500-volt switch is mounted on a substantial marble base. No handle is provided with switch blade, but the latter is arranged to be closed and opened by an insulated hook stick furnished with each switch.

For Voltages to 750 and Capacities Up to 1200 Amperes

With Box

Cat. No.	Amp.	Height Inches	Wt. Lbs. Each	Price Each
700627	200	26½	13	**$24.50**
700628	400	30	23	**28.50**
700629	600	30½	29	**31.00**
700630	800	30½	32	**36.00**
700631	1200	34	40	**46.00**

Without Box

Cat. No.	Amp.	Height Inches	Wt. Lbs. Each	Price Each
700622	200	12½	5	**13.50**
700623	400	15¼	10	**17.50**
700624	600	16¾	16	**20.00**
700625	800	16¾	21	**25.00**
700626	1200	19⅝	30	**35.00**

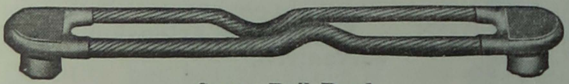
For Voltages to 1500 and Capacities of 1200 Amperes

Cat. No.	Amp.	Height Inches	Wt. Lbs. Each	Price Each
242866	1200	33⅜	45	**80.00**

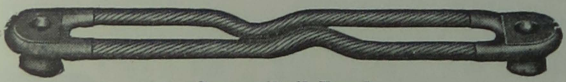
WESTINGHOUSE RAIL BONDS

If a special type bond is desired give full dimensions and reference to some standard type.

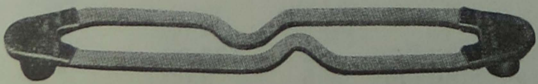
CONCEALED RAIL BONDS



Crown Rail Bond
Type C. S. 01 (Solid Terminals)



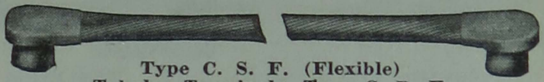
Crown Rail Bond
Type C. P. 01 (Pin Terminals)



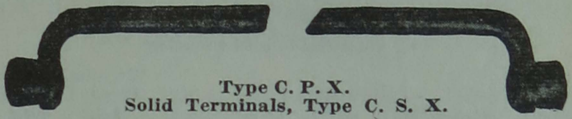
United States Rail Bond
Type U. S. 02 (Solid Terminals)

WESTINGHOUSE RAIL BONDS
(Continued)

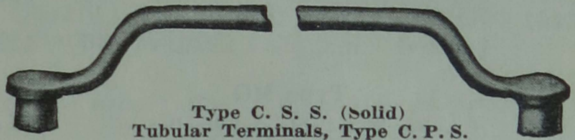
EXPOSED CROWN RAIL BONDS



Type C. S. F. (Flexible)
Tubular Terminals, Type C. P. F.



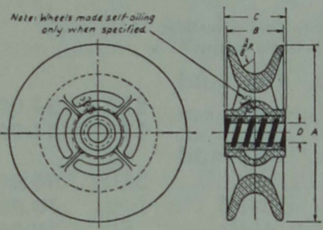
Type C. P. X.
Solid Terminals, Type C. S. X.



Type C. S. S. (Solid)
Tubular Terminals, Type C. P. S.

These bonds are priced according to their straight and extended lengths, terminal diameters and capacities.

UNION STANDARD TROLLEY WHEELS



Union Standard Trolley Wheels are just as strictly made from carefully specified materials as any other Westinghouse product. The ideal trolley wheel must not be hard enough to wear the wire unduly, it must not be soft enough itself to wear out readily, and it must have maximum conductivity. Phosphor bronze meets all these conditions.

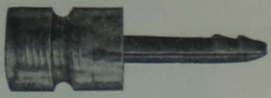
		Dimensions, Inches					
		A	B	C	D		
Cat. No.	Form No.	Outside Dia.	Width Flanges	Lgth. Thru Hub	Size Bore	Approx. Wt. Lbs.	Price Each
600935	5	4¼	1⅜	1½	½	2	**$2.10**
600937	21	5¾	1½	3	½	3½	**4.50**
600513	31	4¼	1⅜	1½	½	2¼	**1.85**
600938	32	4¼	1⅜	1½	⅝	2¼	**2.00**
600890	33	4½	1 7/16	1½	½	2¾	**2.35**
600939	34	4½	1 7/16	1½	⅝	2½	**2.30**
600940	36	5	1 7/16	1½	½	2¾	**2.65**
600941	37	5	1 7/16	1½	⅝	2½	**2.75**
600942	38	5	1 7/16	2	⅝	3	**2.80**
600944	41	5½	1 7/16	1½	½	3	**2.95**
600945	42	5½	1 7/16	1½	⅝	3	**3.15**
600946	43	5½	1 7/16	2	⅝	3¼	**3.20**
600947	46	6	1 7/16	1½	½	3½	**3.25**
600948	47	6	1 7/16	1½	⅝	3¾	**3.30**
600554	48	6	1 7/16	2	⅝	3½	**3.40**
600949	49	6	1 7/16	3	½	3¾	**3.70**
601181	61	5	1 7/16	1½	¾	3	**3.15**
601182	63	6	1 7/16	1½	¾	3¾	**3.80**
601460	64	5	1 11/32	1½	¾	3¼	**3.15**
601468	66	4	1 11/32	1½	¾	2	**2.50**
603902	80	5	1 11/32	1½	½	3¼	**3.30**
604794	42A	5½	1½	1½	⅝	3¼	**3.15**
604800	42B	5½	1½	1½	¾	3¼	**3.15**

BUSHINGS FOR TROLLEY WHEELS

Cat. No.	Dia. Pin, Inches	Outside Diam.	Lgth., Inches	For Wheel Forms	Price Each
600952	⅝	1	1½	32-40-B-60A	**$0.72**
600953	⅝	1	2	48-60B	**.81**
600954	½	⅞	1½	5-6-31-40A	**.51**
600369	¾	1⅛	1½	64-66	**.72**

WESTINGHOUSE FEED WIRE INSULATORS FOR MINES

Type MF


Type MG

Type MF

For 0000 Cable and Smaller

Cat. No.	Description	Wt. Lbs. Per 100	Price Per 100
246707	Complete with Pin	106	$25.00
246705	Porcelain Spool	60	13.00
256261	Malleable Iron Pin, Galvanized	46	12.00

Type MG

For 0000 Cable and Smaller
Spool With ⅝-Inch Groove

Cat. No.	Description	Wt. Lbs. Per 100	Price Per 100
182018	Complete, Galv. Pin and Spool	200	54.00
146632	Porcelain Spool	120	34.00
544180	Complete, Galv. Pin and Spool	200	60.00
544178	Porcelain Spool	120	40.00

For 250,000 c.m. and Smaller
Spool With 1-Inch Groove

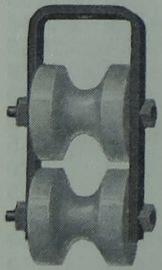
Cat. No.	Description	Wt. Lbs. Per 100	Price Per 100
356831	Complete, Galv. Pin and Spool	210	54.00
356830	Porcelain Spool	130	34.00
544181	Complete, Galv. Pin and Spool	210	60.00
544179	Porcelain Spool	130	40.00
137729	Malleabe Iron Pin, Galv.	80	20.00

Type RS

For 0000 Cable and Smaller

Cat. No.	Description	Wt. Lbs. Per 100	Price Per 100
300641	Complete	118	26.00
246705	Porcelain Spool	56	13.00
304421	Malleable Iron Pin	50	12.00
304422	Malleable Iron Washer	12	1.50

Standard package, 50


Type DS
Style No. 251712

FEED-WIRE INSULATORS

For Heavy Cable

For carrying large feeder cables and insulating them from mine roof. Type OS has single spool, Type DS has double spool.

Expansion bolts, especially Type AM, are used with both types.

Single Spool Type

Cat. No.	C.M.	Dia. Groove Inches	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
251712	500000	1⅜	25	170	$42.50
251713	1000000	1⅞	10	372	85.00

Double Spool Type

Cat. No.	C.M.	Dia. Groove Inches	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
300854	500000	1⅜	25	355	85.00
304423	1000000	1⅞	10	727	170.00

Spool Only

Cat. No.	C.M.	Dia. Groove Inches	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
288989	500000	1⅜	....	100	20.00
288988	1000000	1⅞	....	238	40.00

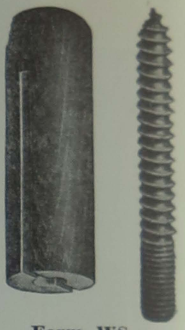
WESTINGHOUSE EXPANSION BOLTS

Galvanized

Form AM

Form BM

Form CM


Form WS

Form AM—⅝-Inch Bolt with Square Head For Use with Type A Mine Suspension

Cat. No.	Description	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
125763	Complete with 4-Inch Shell	50	113	$40.00
141620	Complete with 6-Inch Shell	50	159	46.00

Form BM—⅝-Inch Stud with Fixed Square Shoulder

Cat. No.	Description	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
127267	Complete with 4-inch Shell	50	120	44.00
141621	Complete with 6-Inch Shell	50	170	50.00

Form CM—⅝-Inch Stud Threaded Both Ends

Cat. No.	Description	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
108142	Complete with 4-Inch Shell	50	120	34.00
141622	Complete with 6-Inch Shell	50	170	40.00

Form WS—Consists of Wood Plug 1½x3 or 4-Inch and Stud Lag ⅝x4 or 5 Inches

Cat. No.	Description	Std. Pkg.	Wt. Lbs. Per 100	Price Per 100
83123	4-Inch Wood Plug	50	16	8.00
256266	⅝x5-Inch Stud Lag	100	25	11.00
306281	3-Inch Wood Plug	50	14	6.00
306283	⅝x4-Inch Stud Lag	100	22	9.00

WESTINGHOUSE PIPE EXTENSION COUPLINGS

For Use with ¾ Inch Pipe

Upper pipe extension coupling, galvanized.

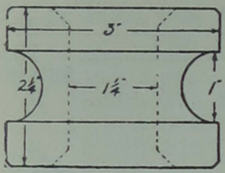
Cat. No.	Wt. Lbs. Per 100	Price Per 100
289975	27	$35.00

Lower pipe extension coupling, galvanized and stud.

Cat. No.		Wt. Lbs. Per 100	Price Per 100
289976	Coupling	22	$38.00
714194	Stud only	5	3.00

PORCELAIN INSULATORS

Moulded from high grade porcelain, surface covered with a glassy coating that is impervious to moisture. All insulators conform with all requirements of Underwriters' Board.

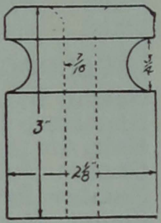


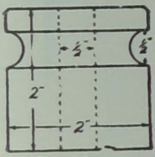
Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
0	2¼	3	1¼	1	$300.00

Quantity per barrel, 400; weight per barrel, 400 lbs.

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
1	3	2⅛	7/16	¾	$182.00

Quantity per barrel, 575; weight per barrel, 420 lbs.



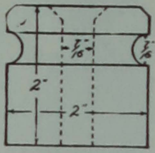


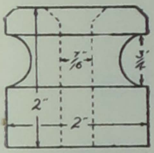
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
2	2	2	½	½	$120.00

Quantity per barrel, 900; weight per barrel, 450 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
3	2	2	7/16	7/16	$110.00

Quantity per barrel, 900; weight per barrel, 435 lbs.



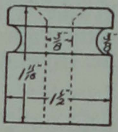


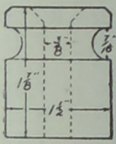
Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
3½	2	2	7/16	¾	$110.00

Quantity per barrel, 900; weight per barrel, 385 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
4	1 11/16	1½	⅜	⅜	$55.00

Quantity per barrel, 2000; weight per barrel, 460 lbs.



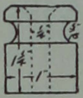


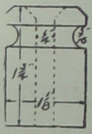
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
4½	1⅞	1⅜	⅜	7/16	$55.00

Quantity per barrel, 2000; weight per barrel, 460 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
5	1¼	1	¼	5/16	$29.00

Quantity per barrel, 6300; weight per barrel, 455 lbs.



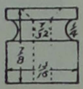


Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
5½	1 9/16	1⅛	¼	5/16	$38.00

Quantity per barrel, 3800; weight per barrel, 455 lbs.

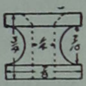
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
6	⅞	13/16	7/32	¼	$22.00

Quantity per barrel, 12,000; weight per barrel, 445 lbs.



PORCELAIN INSULATORS

Moulded from high grade porcelain, surface covered with a glassy coating that is impervious to moisture. All insulators conform with all requirements of Underwriters' Board.

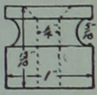


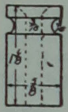
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
7	¾	⅞	¼	7/16	$26.00

Quantity per half barrel, 9000; weight per barrel, 300 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
8	15/16	1	¼	5/16	$26.00

Quantity per barrel, 10,000; weight per barrel, 425 lbs.



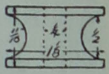


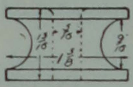
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
9	1⅛	⅝	3/16	3/16	$25.00

Quantity per barrel, 11,000; weight per barrel, 440 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
11	11/16	1⅛	¼	½	$45.00

Quantity per barrel, 10,000; weight per barrel, 475 lbs.



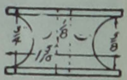


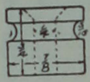
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
12	13/16	1⅜	5/16	9/16	$58.00

Quantity per barrel, 7000; weight per barrel, 440 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
13	¾	1 5/16	⅛	⅝	$81.00

Quantity per barrel, 5000; weight per barrel, 425 lbs.



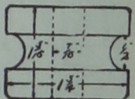


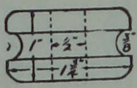
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
14	¾	⅞	¼	3/16	$26.00

Quantity per barrel, 11,000; weight per barrel, 460 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
15	1 5/16	1¾	7/16	½	$76.00

Quantity per barrel 1900; weight per barrel, 450 lbs.



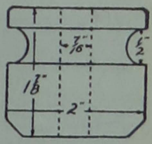


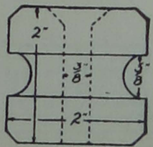
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
16	1	1¾	½	⅜	$75.00

Quantity per barrel, 1600; weight per barrel, 430 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
19	1⅞	2	7/16	½	$116.00

Quantity per barrel, 900; weight per barrel, 450 lbs.



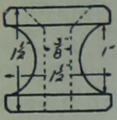


Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
20	2	2	⅜	⅝	$130.00

Quantity per barrel, 1000; weight per barrel, 425 lbs.

PORCELAIN INSULATORS

Molded from high grade porcelain, surface covered with a glassy coating that is impervious to moisture. All insulators conform with all requirements of Underwriters' Board.

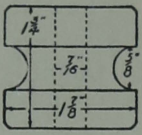


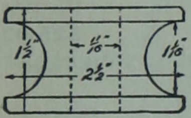
Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
23	1½	1½	⅜	1	$76.00

Quantity per barrel, 2200; weight per barrel, 425 lbs.

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
24	1¾	1⅞	7/16	⅝	$102.00

Quantity per barrel, 1200; weight per barrel, 440 lbs.



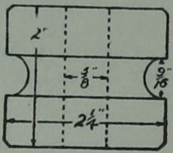


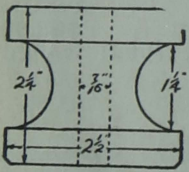
Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
25	1½	2½	11/16	1 1/16	$142.00

Quantity per barrel, 950; weight per barrel, 450 lbs.

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
26	2	2¼	⅝	9/16	$142.00

Quantity per barrel, 675; weight, per barrel, 435 lbs.



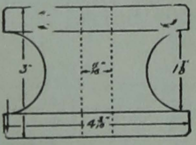


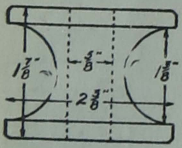
Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
29	2⅜	2½	7/16	1¼	$200.00

Quantity per barrel, 600; weight per barrel, 400 lbs.

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
32	3	4 3/16	11/16	1⅞	$655.00

Quantity per barrel, 140; weight per barrel, 440 lbs.



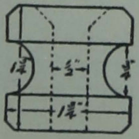


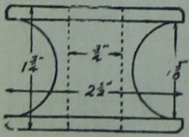
Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
34	1⅞	2⅜	⅝	1⅜	$176.00

Quantity per barrel, 800; weight per barrel, 425 lbs.

Mfrs. No.	Hgt. In.	Diam. In.	Hole In.	Groove In.	Price Per 1000
36	1¾	1¾	½	¾	$90.00

Quantity per barrel, 1500; weight per barrel. 425 lbs.



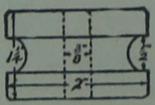


Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
39	1¾	2½	¾	1⅜	$158.00

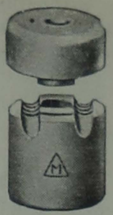
Quantity per barrel, 600; weight per barrel, 370 lbs.

Mfrs. No.	Hgt. In.	Dia. In.	Hole In.	Groove In.	Price Per 1000
41	1¼	2	⅜	½	$95.00

Quantity per barrel, 1300; weight per barrel, 425 lbs.



PORCELAIN INSULATORS

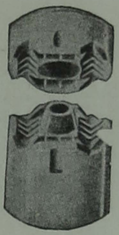


5¼ SPLIT 2 GROOVES, SWIVEL CAP

Height, In.	1¾
Diameter, In.	1⅛
Hole, In.	¼
Groove, In.	¼
Number Per Barrel	3200
Pounds Per 1000	135
Price Per 1000	$52.00

BULLDOG ASSEMBLED ON NAILS

Height, In.	1¾
Diameter, In.	1⅛
Hole, In.	¼
Groove, In.	¼
Number Per Barrel	3000
Pounds Per 1000	165
Price Per 1000	$70.00



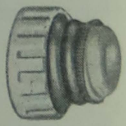
FOUR GROOVES

Mfrs. No.	9419	9420
Size Wire	8–14	4–8
Height, In.	1⅞	2⅛
Diameter, In.	1½	2
Number Per Barrel	1500	700
Pounds Per 1000	290	650
Price Per 1000	$87.00	$142.00

FEDERAL CLAMP BUSHINGS

TYPE A BUSHINGS

Bushings are made of one piece best grade vitrified porcelain. Clamping rings are made of metal, threaded to fit threads on the porcelain.



Mfrs. No.	Conduit K. O. Size, In.	Diam., In. Inside	Diam., In. Outside	Approx. Max. Size R.C. Wire	Std. Pkg.	Price Per 100
A-1	*¼	5/16	41/64	No. 10	500	$6.00
A-1½	½	5/16	13/16	No. 10	250	7.25
A-1½LS	½	5/16	13/16	No. 10	250	7.25
A-2	½	15/32	13/16	No. 8	250	7.25
A-2LS	½	27/64	13/16	No. 8	250	8.25
A-2½	½	33/64	13/16	‡No. 4	250	7.25
A-3	¾	9/16	1	No. 3	250	9.60
A-4	1	¾	1 5/16	No. 00	125	12.80
A-4L	1	⅞	1 5/16	No. 4/0	125	12.80
A-5	1¼	1⅛	1⅝	450000 C.M.	125	17.25
A-6	2	1⅝	2 5/16	1000000 C.M.	60	31.00

LS, long shank. *Loom. ‡For ½-inch Neon sign cable.

TYPE B EXTRA LONG BUSHING

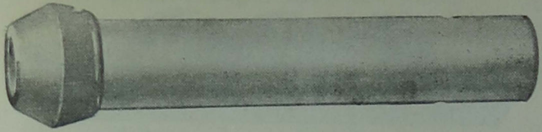
Will fit No. 10 solid single braid rubber covered wire.

Mfrs. No.	Conduit K. O. Size, In.	Diam., In. Inside	Diam., In. Outside	Std. Pkg.	Price Per 100
B-1	*¼	9/32	41/64	250	$12.00

*Loom.

PORCELAIN TUBES

STANDARD—UNGLAZED



Lgth. In.	Std. Pkg.	Pkg. Wt. Gro.	Per 1000 Pieces
5/16-In. Hole, 9/16-In. O. D.			
½	15,000	375	**$16.00**
1	11,000	375	**17.00**
1½	9,000	375	**18.00**
2	7,000	375	**19.00**
2½	6,000	360	**21.00**
3	5,400	355	**23.00**
4	3,900	315	**30.00**
5	3,200	330	**39.00**
6	3,000	330	**50.00**
8	2,200	340	**90.00**
10	1,700	335	**167.00**
12	1,200	340	**244.00**
14	1,000	335	**321.00**
16	800	340	**398.00**
18	500	340	**475.00**
20	450	340	**552.00**
24	400	340	**706.00**
3/8-In. Hole, 11/16-In. O. D.			
½	12,500	375	**20.00**
1	9,500	375	**21.00**
1½	8,000	375	**22.00**
2	7,000	370	**24.00**
2½	5,000	350	**27.00**
3	3,800	340	**30.00**
4	2,900	340	**40.00**
5	2,500	340	**50.00**
6	2,000	335	**60.00**
8	1,600	340	**105.00**
10	1,200	320	**186.00**
12	1,000	305	**267.00**
14	800	200	**348.00**
16	700	300	**429.00**
18	450	290	**510.00**
20	400	290	**591.00**
24	400	300	**753.00**
½-In. Hole, 13/16-In. O. D.			
1	8,500	360	**27.00**
1½	7,500	360	**28.00**
2	5,000	355	**30.00**
2½	4,000	350	**33.00**
3	2,700	340	**37.00**
4	2,000	335	**48.00**
5	1,700	340	**60.00**
6	1,500	340	**72.00**
8	1,200	335	**130.00**
10	1,000	335	**215.00**
12	800	340	**300.00**
14	700	320	**385.00**
16	550	300	**470.00**
18	475	250	**555.00**
20	300	270	**640.00**
24	300	260	**810.00**
5/8-In. Hole, 15/16-In. O. D.			
1	4,500	380	**40.00**
1½	3,200	375	**46.00**
2	2,500	355	**52.00**
2½	2,000	325	**58.00**
3	1,800	320	**65.00**
4	1,450	325	**80.00**
5	1,200	320	**95.00**
6	1,000	305	**110.00**
8	700	275	**140.00**
10	500	255	**250.00**
12	375	220	**340.00**
14	310	215	**430.00**
16	250	205	**520.00**

Lgth. In.	Std. Pkg.	Pkg. Wt. Gro.	Per 1000 Pieces
¾-In. Hole, 1 3/16-In. O. D.			
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1	3,700	330	**$60.00**
1½	2,500	320	**70.00**
2	1,800	310	**80.00**
2½	1,500	295	**90.00**
3	1,250	285	**100.00**
4	850	250	**116.00**
5	700	255	**132.00**
6	600	255	**148.00**
8	450	245	**180.00**
10	350	240	**290.00**
12	325	240	**390.00**
14	250	230	**492.00**
16	185	205	**594.00**
18	160	200	**696.00**
20	125	180	**798.00**
24	125	210	**1,000.00**
1-In. Hole, 1 7/16-In. O. D.			
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1	2,000	350	**100.00**
1½	1,500	360	**112.00**
2	1,100	345	**125.00**
2½	900	330	**138.00**
3	750	315	**150.00**
4	600	300	**168.00**
5	500	290	**186.00**
6	400	280	**204.00**
8	325	290	**240.00**
10	245	270	**375.00**
12	190	255	**500.00**
14	150	230	**625.00**
16	140	230	**750.00**
18	110	210	**875.00**
20	85	195	**1,000.00**
24	85	215	**1,250.00**
1¼-In. Hole, 1 13/16-In. O. D.			
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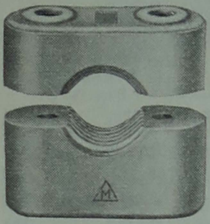
2½	525	320	**190.00**
3	425	310	**210.00**
4	360	310	**240.00**
5	325	305	**272.00**
6	250	300	**306.00**
8	180	290	**376.00**
10	140	265	**450.00**
12	120	265	**700.00**
14	100	255	**870.00**
16	85	175	**1,040.00**
18	70	235	**1,210.00**
20	55	215	**1,380.00**
24	55	240	**1,720.00**
1½-In. Hole, 2 3/16-In. O. D.			
2½	350	325	**255.00**
3	300	315	**280.00**
4	250	305	**320.00**
5	225	305	**360.00**
6	180	305	**405.00**
8	140	300	**490.00**
10	110	300	**580.00**
12	90	280	**1,025.00**
14	75	275	**1,235.00**
16	65	265	**1,445.00**
18	55	250	**1,660.00**
20	40	220	**1,875.00**
24	40	250	**2,300.00**

PORCELAIN CLEATS

STANDARD ONE WIRE ROUND GROOVE

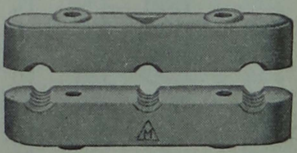


One wire cleats regular consist of low base and low cap. One wire cleats A consist of low cap and base one inch high under wire. One wire cleats B consist of base one inch high under wire and cap one inch high over wire.

Cat. No.	Groove In.	Holes In.	Lgth. In.	Wdth. In.	No. Per Barrel	Lb. Per Barrel
1 **Regular**	1/8 to 3/8	¼	2	7/8	2800	475
2 **Regular**	3/8 to ½	¼	2¼	1	1800	465
3 **Regular**	½ to 5/8	¼	2½	1 1/8	1500	460
4 **Regular**	5/8 to ¾	5/16	2¾	1¼	950	475
5 **Regular**	¾ to 1	5/16	3	1 3/8	800	450
1 A	1/8 to 3/8	¼	2	7/8	2400	490
2 A	3/8 to ½	¼	2¼	1	1400	480
3 A	½ to 5/8	¼	2½	1 1/8	1200	480
4 A	5/8 to ¾	5/16	2¾	1¼	800	470
5 A	¾ to 1	5/16	3	1 3/8	700	450
1 B	1/8 to 3/8	¼	2	7/8	1800	490
2 B	3/8 to ½	¼	2¼	1	1150	485
3 B	½ to 5/8	¼	2½	1 1/8	1050	490
4 B	5/8 to ¾	5/16	2¾	1¼	750	485
5 B	¾ to 1	5/16	3	1 3/8	650	470
6 B	1 to 1¼	3/8	3 3/8	1½	450	460
7 B	1¼ to 1½	3/8	3¾	1 5/8	375	445
8 B	1½ to 1¾	7/16	4½	1¾	250	550
9 B	1¾ to 2	7/16	5	2	200	550

Cat. No.	Size Wire	Price Per 1000
1 **Regular**	14 to 8	**$74.00**
2 **Regular**	8 to 4	**96.00**
3 **Regular**	4 to 0	**110.00**
4 **Regular**	0 to 0000	**140.00**
5 **Regular**	0000 to 300,000 C.M.	**180.00**
1 A	14 to 8	**80.00**
2 A	8 to 4	**108.00**
3 A	4 to 0	**125.00**
4 A	0 to 0000	**156.00**
5 A	0000 to 300,000 C.M.	**196.00**
1 B	14 to 8	**86.00**
2 B	8 to 4	**120.00**
3 B	4 to 0	**140.00**
4 B	0 to 0000	**172.00**
5 B	0000 to 300,000 C.M.	**212.00**
6 B	300,000 to 550,000 C.M.	**260.00**
7 B	550,000 to 1,000,000 C.M.	**330.00**
8 B	1,000,000 to 1,500,000 C.M.	**500.00**
9 B	1,500,000 to 2,000,000 C.M.	**620.00**

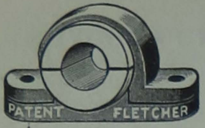
TWO AND THREE WIRE CLEATS



Cat. No. 2-Wire	Cat. No. 3-Wire	Hght. In.	Wdth. In.	Lgth. In.	Groove In.	Hole In.	Wt. Lbs. Per 1000
336	**337**	1 1/8	5/8	3 5/16	1/8 to ¼	¼	200

Number per barrel, 2000.

FLETCHER INSULATED RACKS

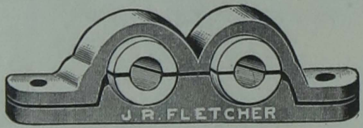


Two-piece frames with split porcelain insulator bushings. Note that D. C. and A. C. are different.

ONE WIRE

Iron Base Iron Tops For D. C.		Dimensions, Inches				Iron Base Brass Tops For A. C.	
Mfrs. No.	Price Each	Opening	Lgth.	Wdth.	Screw Holes	Mfrs. No.	Price Each
1400	$0.14	3/16	2⅝	1¼	¼	6100	$0.20
1402	.14	¼	2⅝	1¼	¼	6101	.20
1406	.18	5/16	3¼	1⅜	¼	6102	.30
1407	.18	⅜	3¼	1⅜	¼	6103	.30
1408	.18	7/16	3¼	1⅜	¼	6104	.30
1409	.18	½	3¼	1⅜	¼	6105	.30
1411	.32	5/16	5 5/16	2	⅜	6106	.80
1412	.32	⅜	5 5/16	2	⅜	6107	.80
1413	.32	7/16	5 5/16	2	⅜	6108	.80
1414	.32	½	5 5/16	2	⅜	6109	.80
1415	.32	9/16	5 5/16	2	⅜	6110	.80
1442	.32	⅝	5 5/16	2	⅜	6111	.80
1444	.32	¾	5 5/16	2	⅜	6112	.80
1446	.32	⅞	5 5/16	2	⅜	6113	.80
1448	.32	1	5 5/16	2	⅜	6114	.80
1449	.52	1⅛	7	2¼	7/16	6115	1.00
1450	.52	1¼	7	2¼	7/16	6116	1.00
1451	.52	1⅜	7	2¼	7/16	6117	1.00
1452	.52	1½	7	2¼	7/16	6118	1.00
1453	.52	1⅝	7	2¼	7/16	6119	1.00
1454	.80	1¾	8⅜	3	½	6120	2.00
1455	.80	1⅞	8⅜	3	½	6121	2.00
1456	.80	2	8⅜	3	½	6122	2.00
1457	1.00	2⅛	9 5/16	3¼	½	6123	2.60
1458	1.00	2¼	9 5/16	3¼	½	6124	2.60
1459	1.00	2⅜	9 5/16	3¼	½	6125	2.60
1460	1.00	2½	9 5/16	3¼	½	6126	2.60

TWO WIRE

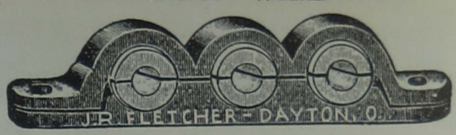


Iron Base Iron Tops For D. C.		Dimensions, Inches				Iron Base Brass Tops For A. C.	
Mfrs. No.	Price Each	Opening	Lgth.	Wdth.	Screw Holes	Mfrs. No.	Price Each
3200	$0.28	3/16	5¼	1¼	5/16	6200	$0.40
3201	.28	¼	5¼	1¼	5/16	6201	.40
3236	.38	5/16	5⅞	1⅜	⅜	6202	.65
3202	.38	⅜	5⅞	1⅜	⅜	6203	.65
3237	.38	7/16	5⅞	1⅜	⅜	6204	.65
3203	.38	½	5⅞	1⅜	⅜	6205	.65
3239	.68	5/16	8⅛	2	⅜	6206	1.75
3240	.68	⅜	8⅛	2	⅜	6207	1.75
3241	.68	7/16	8⅛	2	⅜	6208	1.75
3242	.68	½	8⅛	2	⅜	6209	1.75
3243	.68	9/16	8⅛	2	⅜	6210	1.75
3204	.68	⅝	8⅛	2	⅜	6211	1.75
3205	.68	¾	8⅛	2	⅜	6212	1.75
3206	.68	⅞	8⅛	2	⅜	6213	1.75
3207	.68	1	8⅛	2	⅜	6214	1.75
3208	1.00	1⅛	10	2¼	7/16	6215	2.25
3209	1.00	1¼	10	2¼	7/16	6216	2.25
3210	1.00	1⅜	10	2¼	7/16	6217	2.25
3211	1.00	1½	10	2¼	7/16	6218	2.25
3212	1.00	1⅝	10	2¼	7/16	6219	2.25
3213	1.30	1¾	12¼	3	½	6220	3.25
3214	1.30	1⅞	12¼	3	½	6221	3.25
3215	1.30	2	12¼	3	½	6222	3.25
3216	2.10	2⅛	13¾	3¼	½	6223	4.50
3217	2.10	2¼	13¾	3¼	½	6224	4.50
3218	2.10	2⅜	13¾	3¼	½	6225	4.50
3219	2.10	2½	13¾	3¼	½	6226	4.50

When ordering, give exact outside diameter of cables.

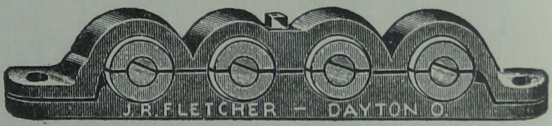
FLETCHER INSULATED RACKS

THREE WIRE


J. R. FLETCHER - DAYTON, O.

Iron Base Iron Tops For D. C.		Dimensions, Inches				Iron Base Brass Tops For A. C.	
Mfrs. No.	Price Each	Opening	Lgth.	Wdth.	Screw Holes	Mfrs. No.	Price Each
3300	$0.38	3/16	5⅞	1¼	¼	6300	$0.52
3301	.38	¼	5⅞	1¼	¼	6301	.52
3336	.50	5/16	7⅛	1⅜	5/16	6302	.75
3302	.50	⅜	7⅛	1⅜	5/16	6303	.75
3337	.50	7/16	7⅛	1⅜	5/16	6304	.75
3303	.50	½	7⅛	1⅜	5/16	6305	.75
3339	.90	5/16	10½	2	⅜	6306	1.90
3340	.90	⅜	10½	2	⅜	6307	1.90
3341	.90	7/16	10½	2	⅜	6308	1.90
3342	.90	½	10½	2	⅜	6309	1.90
3343	.90	9/16	10½	2	⅜	6310	1.90
3304	.90	⅝	10½	2	⅜	6311	1.90
3305	.90	¾	10½	2	⅜	6312	1.90
3306	.90	⅞	10½	2	⅜	6313	1.90
3307	.90	1	10½	2	⅜	6314	1.90
3308	1.50	1⅛	13 3/16	2¼	⅜	6315	3.60
3309	1.50	1¼	13 3/16	2¼	⅜	6316	3.60
3310	1.50	1⅜	13 3/16	2¼	⅜	6317	3.60
3311	1.50	1½	13 3/16	2¼	⅜	6318	3.60
3312	1.50	1⅝	13 3/16	2¼	⅜	6319	3.60
3313	2.00	1¾	16	3	½	6320	5.00
3314	2.00	1⅞	16	3	½	6321	5.00
3315	2.00	2	16	3	½	6322	5.00
3316	3.10	2⅛	18½	3¼	½	6323	6.00
3317	3.10	2¼	18½	3¼	½	6324	6.00
3318	3.10	2⅜	18½	3¼	½	6325	6.00
3319	3.10	2½	18½	3¼	½	6326	6.00

FOUR WIRE


J. R. FLETCHER - DAYTON O.

Iron Base Iron Tops For D. C.		Dimensions, Inches				Iron Base Brass Tops For A. C.	
Mfrs. No.	Price Each	Opening	Lgth.	Wdth.	Screw Holes	Mfrs. No.	Price Each
3400	$0.40	3/16	7 5/16	1¼	¼	6400	$0.75
3401	.40	¼	7 5/16	1¼	¼	6401	.75
3436	.60	5/16	8 13/16	1⅜	5/16	6402	1.40
3402	.60	⅜	8 13/16	1⅜	5/16	6403	1.40
3437	.60	7/16	8 13/16	1⅜	5/16	6404	1.40
3403	.60	½	8 13/16	1⅜	5/16	6405	1.40
3439	1.10	5/16	12 15/16	2	⅜	6406	2.50
3440	1.10	⅜	12 15/16	2	⅜	6407	2.50
3441	1.10	7/16	12 15/16	2	⅜	6408	2.50
3442	1.10	½	12 15/16	2	⅜	6409	2.50
3443	1.10	9/16	12 15/16	2	⅜	6410	2.50
3404	1.10	⅝	12 15/16	2	⅜	6411	2.50
3405	1.10	¾	12 15/16	2	⅜	6412	2.50
3406	1.10	⅞	12 15/16	2	⅜	6413	2.50
3407	1.10	1	12 15/16	2	⅜	6414	2.50
3408	1.80	1⅛	16⅜	2¼	⅜	6415	4.50
3409	1.80	1¼	16⅜	2¼	⅜	6416	4.50
3410	1.80	1⅜	16⅜	2¼	⅜	6417	4.50
3411	1.80	1½	16⅜	2¼	⅜	6418	4.50
3412	1.80	1⅝	16⅜	2¼	⅜	6419	4.50
3413	3.00	1¾	19⅝	3	½	6420	6.00
3414	3.00	1⅞	19⅝	3	½	6421	6.00
3415	3.00	2	19⅝	3	½	6422	6.00
3416	4.10	2⅛	23⅛	3¼	½	6423	8.00
3417	4.10	2¼	23⅛	3¼	½	6424	8.00
3418	4.10	2⅜	23⅛	3¼	½	6425	8.00
3419	4.10	2½	23⅛	3¼	½	6426	8.00

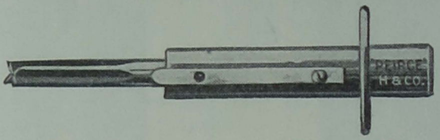
When ordering, give exact outside diameter of cables.

PEIRCE HAMMER DRILLS

FOR ANY SIZE DRILL POINT

Mfrs. No.	Tamping For Bolts In.	Wt.Lbs. Each	Price Per 100
50	¼	7.5	**$1482.00**
53	⅜	8.0	**1578.00**

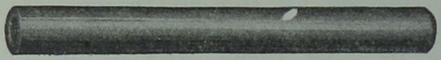
PEIRCE HAND CHUCKS



For hand and hammer drilling. For any size drill. Weight, 2⅗ pounds each.

Mfrs. No. **55.** Price Per 100........................**$200.00**

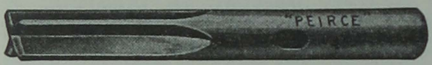
PEIRCE TAMPING TOOLS



For tamping lead sleeves of expansion bolts.

Mfrs. No.	Diam. Bolt, In. Straight	Wt.Lbs. Each	Price Per 100
67	¼	3.4	**$58.20**
68	⅜	4.9	**58.20**
69	½	10.2	**58.20**

PEIRCE DRILL POINTS



All drill points are measured overall.

Mfrs. No.	Size In.	Wt.Lb. Per 100	Price Per 100	Mfrs. No.	Size In.	Wt.Lb. Per 100	Price Per 100
56	⅜x4	20	**$89.20**	**61**	⅝x12	79	**$329.40**
57	½x4	23	**89.20**	**62**	¾x6	47	**230.40**
58	½x6	33	**101.60**	**63**	¾x14	107	**461.00**
59	½x12	65	**220.00**	**64**	⅞x6	57	**303.60**
60	⅝x6	38	**164.60**	**65**	⅞x12	137	**607.20**

PEIRCE LEAD SLEEVE EXPANSION BOLTS

"PEIRCE"
HUBBARD & CO.

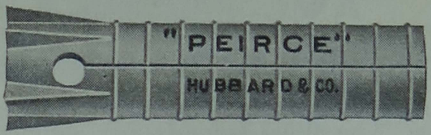
Consists of steel bolt with a wedge shaped head tapering toward the shank and provided with a lead sleeve. Makes the strongest fastening and will not work loose. Galvanized.

Mfrs. No.	Size In.	Wt.Lbs. Per 100	Price Per 100	Mfrs. No.	Size In.	Wt.Lbs. Per 100	Price Per 100
1	¼x1¾	7.1	**$7.90**	**9**	⅜x5	19.9	**$19.60**
2	¼x2	7.5	**8.20**	**10**	⅜x5½	21.0	**20.80**
3	¼x2½	8.3	**8.60**	**11**	½x2½	41.2	**23.00**
4	¼x3¼	9.5	**10.30**	**12**	½x3½	47.2	**25.10**
4A	¼x4	10.7	**11.60**	**13**	½x4	50.2	**26.40**
4B	¼x5	12.3	**14.50**	**14**	½x4½	53.0	**27.30**
5	⅜x2½	14.9	**14.30**	**15**	½x5	56.0	**28.60**
6	⅜x3	15.9	**15.30**	**16**	½x5½	59.0	**29.80**
7	⅜x3½	16.9	**16.30**	**17**	½x6½	62.0	**32.00**
8	⅜x4½	18.9	**19.20**	**18**	½x8	73.0	**35.80**

EXTRA LEAD SLEEVES

Mfrs. No.	Bolt In.	Wt.Lbs. Per 100	Price Per 100
22	¼	2.75	**$2.80**
23	⅜	5.9	**4.40**
24	½	21.5	**13.30**

PEIRCE EXPANSION SHIELDS

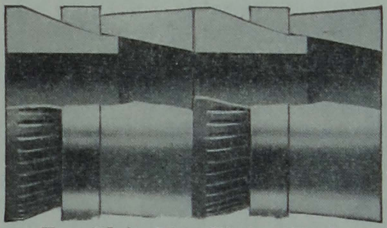


With the Peirce expansion shield, the No. 190 wireholder and other Peirce screw brackets can be used in brick or stone buildings. This shield also replaces and is more satisfactory than the wooden plug ordinarily used for attaching multipoint brackets to brick or stone buildings.

Mfrs. No.	Dimensions, Inches: Size of Screw	Dimensions, Inches: Diam. Shield	Dimensions, Inches: Lgth. Shield	Wt. Lbs. Per 100	Price Per 100
31	20 and 22	½	2	9.5	**$13.10**

RING WEDGE CINCH ANCHORS

2-UNIT SYSTEM



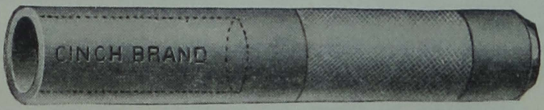
Two Plain Ring Wedge Cinch Anchor Units

A 2-unit anchorage consists of 3 parts: a conical wedge of malleable iron, a lead composition part and an expanding hard metal ring, without bolts. One unit threaded and one unit plain; or both units plain.

Diam. Bolt Sizes	Per 100 Sets	Min. Depth Holes In.	Diam. Hole and Drill Required Inches	Diam. Bolt Sizes	Per 100 Sets	Min. Depth Holes In.	Diam. Hole and Drill Required Inches
3/16	**$7.00**	⅞	½	**⅞**	**$44.00**	2¾	1½
¼	**8.00**	1 1/16	⅝	**1**	**63.00**	3¼	1⅝
5/16	**9.00**	1 1/16	⅝	**1⅛**	**140.00**	4½	2
⅜	**11.00**	1½	13/16	**1¼**	**150.00**	4¾	2⅛
½	**18.00**	1¾	1	**1½**	**220.00**	5¼	2⅜
⅝	**24.00**	1⅞	1⅛	**1¾**	**320.00**	8	3½
¾	**35.00**	2½	1⅜	-----	---------	-----	-----

If no 13/16-inch drill is available, a ¾-inch drill can be used.

CINCH BRANCH CALKING TOOL



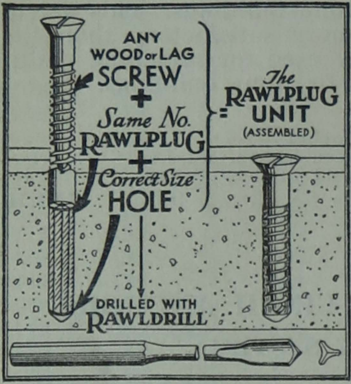
Used for expanding all types of Cinch units. It is made in sizes to fit bolts ranging in diameter from 3/16-inch to 1-inch.

Diameter of Bolt Inches	Price Each	Diameter of Bolt Inches	Price Each
3/16	**$0.40**	**½**	**$0.85**
¼	**.50**	**⅝**	**1.50**
5/16	**.50**	**¾**	**1.80**
⅜	**.60**	**⅞**	**2.10**
7/16	**.60**	**1**	**3.40**

RAWLPLUGS

HOLD SCREWS FAST

Rawlplugs are made from stiffened strands of jute fibre. The fibre strands are compressed together by a patented process. Once in place, a Rawlplug can never crumble or pulp. It is unaffected by moisture or change in temperature.



The screw entering the Rawlplug automatically threads it, which permits removal and replacement of screw as often as desired without stripping the threads so formed. The screw cannot be withdrawn by direct or indirect pull.

Rawlplugs require only a small hole. This makes easier installation and assures a neat job. The Rawlplug is invisible when in position, as the diameter of the hole and Rawlplug is smaller than the head of the screw, the screw has the appearance of being screwed into the masonry itself.

Due to the composition, Rawlplugs resist and absorb shocks. They cannot work loose, slip, sheer or lose their vise-like grip. When properly inserted the Rawlplug should develop the entire strength of the screw or of the surrounding material, such as concrete, brick, stone, slate, marble, plaster, glass, hard rubber, gypsum block, wallboard, terra cotta, composition walls and floors, wood and metal.

Rawl-plug No.	Price Per 100 Length of Rawlplug—Inches ⅝	¾	1	1¼	1½	2	2½	3	3½
6	$1.25	$1.30	$1.45	....	....	....	....	....	....
8	1.50	1.60	1.80	....	$2.20	....	....	....	....
10	....	1.80	2.05	$2.30	2.55	....	....	....	....
12	....	2.20	2.45	2.70	2.95	$3.45	....	....	....
14	....	....	2.90	3.20	3.50	4.10	....	....	....
16	....	....	3.30	....	4.10	4.90	....	....	....
20	....	....	4.90	....	5.90	6.90	....	....	....
⅜	For ¼" Lag Screw use				6.50	7.50	8.50	9.50	....
⁷⁄₁₆	No. 14 or No. 16				7.00	8.50	10.00	11.50	....
½	For ⁵⁄₁₆" Lag Screw				....	10.00	11.50	13.00	....
⅝	use No. 20				....	....	13.50	15.00	$16.50

Sizes Nos. 6–14 inclusive, packed 100 to a box.

Sizes Nos. 16-20 packed 50 to a box. Lag screw sizes Nos. ⅜-⅝ inclusive, packed 25 to a box.

Special Sizes or Lengths—Prices quoted upon request for any size and length not shown above.

Standard Package—Contains one dozen boxes of Rawlplugs of same size and length, or one dozen Rawldrills or Holders of same size.

Contractors' Outfit: 250 Rawlplugs, 100 Rawldrives, in popular sizes, 11 corresponding sizes of Rawldrills, holders, Rawl-Grips, gauge, etc., packed in heavy gauge steel tool kit, each $20.00

Household Outfit — Neat box containing No. 8 Rawlplugs, nickel plated screws, screw eyes, Rawldrill, Rawl-Drives, etc., each $0.50.

Rawlplug, Rawldrill and Toolholder Size Data

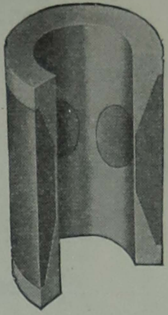
Rawlplug No. (Size)	Use With Screw No.	Diam. Drill Required	Rawldrill No. (Not Diam.)	Use With Tool Holder No.	Size, In. Twist Drill
6	5-6	⁵⁄₃₂"	6	14	⁵⁄₃₂
8	7-8	¹¹⁄₆₄"	8	14	No. 15
10	9-10	³⁄₁₆"	10	14	No. 10
12	11-12	¼"	12	14	¼
14	14*	⁹⁄₃₂"	14	14	⁹⁄₃₂
16	16*	⁵⁄₁₆"	16	20	⁵⁄₁₆
20	20‡	⅜"	20	20	⅜

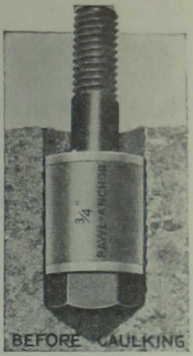
Lag Screw Sizes

⅜	⅜	⁷⁄₁₆"	For ¼" lag screw use No. 14
⁷⁄₁₆	⁷⁄₁₆	½"	or No. 16 Rawlplug.
½	½	⅝"	For ⁵⁄₁₆" lag screw use No. 20
⅝	⅝	¾"	Rawlplug.

*Or ¼-inch lag screw. ‡Or ⁵⁄₁₆-inch lag screw.

RAWL-ANCHORS





The Rawl-Anchor is the only bolt anchor in one unit having all the advantages of multiple units with additional outstanding features.

It may be used either way in the hole, thus preventing any possibility of misapplication. It forms a complete anchorage with only one caulking. Made in one piece, there is no possibility of misassembling. If hole is drilled proper depth there is no necessity of using additional anchorages, grout, or other material to fill the hole.

The collapsible section keeps the cones in their proper place until the anchor is caulked, collapses with the first blow, allowing the two cones to come as nearly together as possible, expanding the lead so that it will fill the hole even if the hole is irregular and oversized.

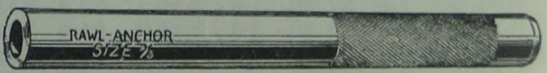
One caulking operation caulks one Rawl-Anchor to the same height as two caulking operations caulk two multiple anchors.

Price per 100, Bolts Not Included.

Diam. of Bolt	Type Bolt Head	Size Hole Drill	Min. Depth Hole	Packed in Boxes	§Price Per 100
¼"	Sq.	½"	1 "	100	$7.50
⁵⁄₁₆"	Sq.	⅝"	1³⁄₁₆"	100	8.50
⅜"	Sq.	* ¾"	1⅜"	100	10.50
½"	Sq.	1 "	2 "	50	17.50
⅝"	Hex.▲	1⅛"	2¼"	50	22.50
¾"	Hex.▲	†1¼"	2½"	25	33.50
⅞"	Hex.▲	1½"	2¾"	20	42.00
1"	Hex.▲	‡1⅝"	3 "	20	59.00

*Or ¹³⁄₁₆-inch. †Or 1⅜-inch. ‡Or 1¾-inch. §Bolts not included. ▲If hexagon head bolts not obtainable, square head may be used, in which case hole drilled should take larger head.

THE RAWL-ANCHOR CAULKING TOOL



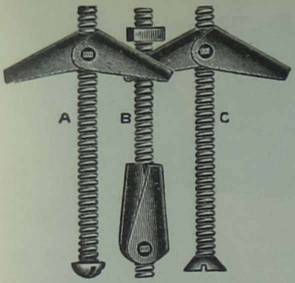
Made in two types — tubular and offset — the former being cold-rolled steel, case-hardened. The latter made only in sizes ¾-inch, ⅞-inch and 1-inch — tool-steel forgings, heat-treated, easy to handle and do not limit length of bolt being used.

The Rawl-Anchor Caulking Tool is carefully made to exact dimensions and will produce excellent results. However, if desired, any ordinary pipe of proper size can be used.

Size	¼"	⁵⁄₁₆"	⅜"	½"	⅝"	¾"	⅞"&1"
Tubular....	$.50	.50	.60	.85	1.50	1.50	3.40
Offset........	......	....	....	....	......	1.80	1.80

PAINE TOGGLE BOLTS

SPRING WING TOGGLE BOLTS

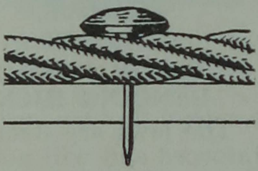


Works instantly in any position in any hollow material. Will work in gypsum or machalite. Made in seven sizes of bolts and seven different styles of heads: Round head; threaded wire with square nut; flat head; oval head; button head; wire with N.P. hexagon cap nut. Button head style bolts made in all sizes. Cap nuts and nickel plating extra. Prices are for all steel toggle bolts. Entirely cadmium plated.

Diam. In.	Lgth. In.	Size Hole	Price Per 100	Diam. In.	Lgth. In.	Size Hole	Price Per 100
6/32	2	⅜	$6.60	¼	4	⅝	$8.00
6/32	3	⅜	6.80	¼	5	⅝	9.40
6/32	4	⅜	7.00	¼	6	⅝	9.80
8/32	3	7/16	7.00	5/16	3	⅞	12.00
8/32	3½	7/16	7.30	5/16	4	⅞	13.00
8/32	4	7/16	7.30	5/16	5	⅞	14.00
3/16	2	½	6.90	5/16	6	⅞	15.00
3/16	3	½	7.00	⅜	3	1	14.00
3/16	3½	½	7.30	⅜	4	1	16.00
3/16	4	½	7.30	⅜	5	1	18.00
3/16	5	½	8.40	⅜	6	1	20.00
3/16	6	½	8.90	½	4	1¼	25.00
¼	3	⅝	7.70	½	6	1¼	30.00
¼	3½	⅝	8.00				

RHODES INSULATED WIRING NAILS

TELEPHONE



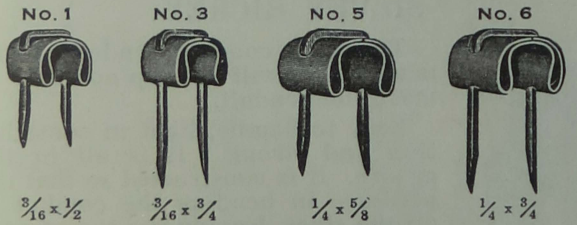
Designed for paired or triple-braided telephone wires. They are made under standard specifications to withstand driving, withdrawing, bending and immersion tests and should not be confused with ordinary upholstery nails of similar appearance. Four standard sizes.

Packed in 100's.

	Price Per 1000			
	½-Inch	⅝-Inch	¾-Inch	⅞-Inch
Olive Green, Dark Green or Brown*	$1.45	$1.45	$1.45	$1.45
White	1.65	1.65	1.65	1.65

BLAKE INSULATED STAPLES

Mfgd. by S. H. COUCH COMPANY, Inc.



Illustrations Actual Size

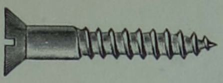
Regular Staples Packed 100 to a Box

Quantity	Packed Box	Packed Carton	Price per 1000 No. 1, 3 & 5	Price per 1000 No. 6 & 7
1000 to 9000	100	1000	$1.30	$1.40
10000 to 24000	100	1000	1.05	1.15
25000 & Over	100	1000	.90	1.00

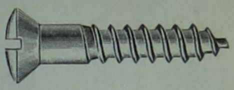
STEEL AND BRASS WOOD SCREWS

Manufactured by American Screw Company, Providence, R.I.

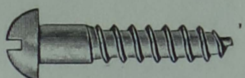
SLOTTED HEAD



Flat Head



Oval Head

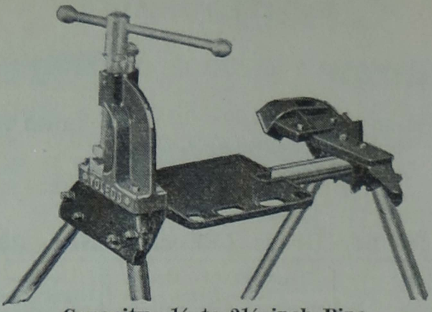


Round Head

List Prices per Gross (Effective Nov. 20, 1935)

Diam.	Price Steel	Price Brass
⅜-Inch		
4	.34	$0.90
5	.34	.98
6	.38	1.10
7	.42	....
8	.46	....
½-Inch		
5	.36	1.10
6	.40	1.25
7	.44	1.45
8	.48	1.65
9	.52	....
10	.56	....
⅝-Inch		
2	.36	.90
3	.38	1.00
4	.38	1.10
5	.40	1.25
6	.44	1.40
7	.48	1 60
8	.52	1.80
9	.56	2.05
10	.60	2.30
11	.64	....
12	.68	....
¾-Inch		
2	.38	1.00
3	.40	1.10
4	.40	1.20
5	.42	1.35
6	.46	1.50
7	.50	1.75
8	.54	2.00
9	.58	2.25
10	.62	2.50
11	.66	2.75
12	.70	3.10
14	.90	....
⅞-Inch		
3	.44	....
4	.46	1.40
5	.48	1.55
6	.52	1.75
7	.56	2.00
8	.60	2.25
9	.64	2.50
10	.68	2.75
11	.72	3.10
12	.76	3.45
14	.105	....
1-Inch		
3	.46	....
4	.48	1.50
5	.50	1.65
6	.54	1.85
7	.58	2.15
8	.62	2.40
9	.66	2.70
10	.70	3.00
11	.75	3.35
12	.80	3.80
14	1.10	4.90
16	1.40	....
1¼-Inch		
4	$0.52	....
5	.54	....
6	.58	$2.20
7	.62	2.50
8	.66	2.80
9	.70	3.20
10	.76	3.60
11	.84	4.00
12	.92	4.45
14	1.25	5.75
16	1.55	....
18	1.85	....
1½-Inch		
4	.60	....
5	.62	....
6	.66	2.45
7	.70	2.80
8	.75	3.20
9	.80	3.60
10	.86	4.00
11	.95	4.55
12	1.05	5.10
14	1.35	6.50
16	1.70	....
18	2.05	....
20	2.40	....
1¾-Inch		
6	.72	....
7	.78	....
8	.84	3.65
9	.90	4.10
10	.96	4.60
11	1.05	5.20
12	1.15	5.85
14	1.50	7.40
16	1.90	....
18	2.30	....
20	2.70	....
2-Inch		
6	.78	....
7	.84	....
8	.90	4.00
9	1.00	4.50
10	1.10	5.10
11	1.20	5.75
12	1.30	6.55
14	1.60	8.15
16	2.00	10.30
18	2.40	12.45
20	2.80	....
2¼-Inch		
6	.82	....
7	.88	....
8	.95	....
9	1.05	....
10	1.15	5.60
11	1.25	6.35
12	1.35	7.15
14	1.75	9.00
16	2.20	11.35
18	2.65	13.60
20	3.10	....
2½-Inch		
6	$0.90	....
7	.96	....
8	1.05	....
9	1.15	....
10	1.25	$6.20
11	1.35	7.00
12	1.50	7.80
14	1.85	9.85
16	2.40	12.50
18	3.00	15.10
20	3.60	....
2¾-Inch		
8	1.10	....
9	1.20	....
10	1.32	....
11	1.45	....
12	1.65	....
14	2.05	....
16	2.60	....
18	3.20	....
20	3.80	....
3-Inch		
8	1.20	....
9	1.30	....
10	1.42	....
11	1.55	....
12	1.75	9.15
14	2.25	11.20
16	2.80	14.40
18	3.40	17.65
20	4.00	....
24	4.95	....
3½-Inch		
10	1.90	....
11	2.10	....
12	2.30	11.20
14	2.80	13.25
16	3.35	16.65
18	3.95	20.20
20	4.55	....
24	5.70	....
4-Inch		
12	2.50	....
14	3.00	....
16	3.55	....
18	4.20	....
20	4.95	....
24	6.60	....
4½-Inch		
14	3.30	....
16	3.85	....
18	4.50	....
20	5.25	....
24	7.10	....
5-Inch		
14	3.65	....
16	4.20	....
18	5.00	....
20	6.00	....
24	7.60	....

TOLEDO HANDY STAND NO. 0
WITH NO. 0 OPEN-SIDE PIPE-VISE

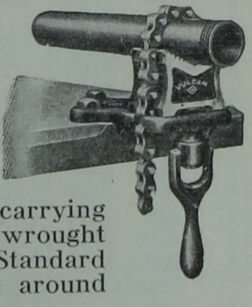


Capacity—⅛ to 2½-inch Pipe

A small, compact, but extremely efficient portable vise stand and work bench. Designed to be used with the Toledo No. 0 Open-side Pipe-Vise, capacity ⅛-inch to 2½-inch pipe inclusive and when furnished with tool tray, provides an 8x9½-inch shelf fitted with holes for hanging pipe wrenches, threading tools, pipe cutters, etc. It can also be furnished with a pipe bender to be bolted to the rear of the bench for bending 1-inch or smaller sizes of pipe or conduit easily, and will not kink the pipe on short bends.

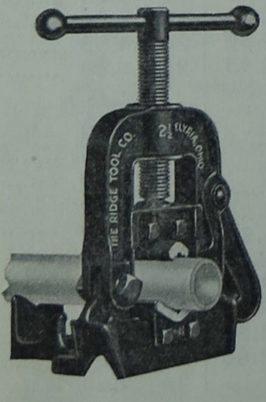
Description	Shpg. Wt. Lbs.	Price Each
Handy Stand Only, (no legs or connecting brace, vise, tool tray or pipe bender)	15½	**$4.00**
Handy Stand with tool tray	21	**4.80**
Handy Stand with tool tray and pipe bender	25½	**5.80**
No. 0 Open-Side Vise (⅛" to 2½" pipe)	12	**3.60**
Handy Stand — complete with tool tray, pipe bender and No. 0 vise (no legs or connecting brace)	37	**9.40**

WILLIAMS' "VULCAN" CHAIN PIPE VISE



For pipe, bolts, bars, shafts, etc., ⅛ to 8 inches in diameter. These vises are unbreakable, compact, rapid in action and positive in grip. All are equally serviceable upon and suitable for fastening to bench or post. The smaller sizes are adapted for carrying in tool bag. Made entirely of wrought steel, with drop-forged jaws. Standard finish—jaws have bright face around panel.

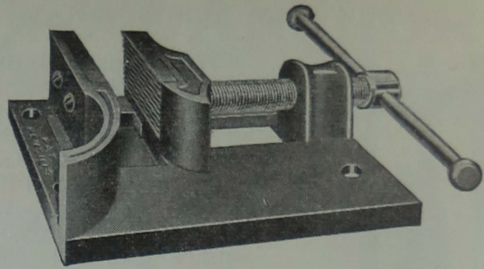
Cat. No.	For Pipe Size	Jaws Pair	Chain with Screw	Screw	Handle and Nut	Nut	Vise Complete
1	⅛-2	$3.00	$2.50	$0.80	$2.20	$1.40	**$7.00**
2	¼-4	7.00	4.80	1.40	4.20	2.70	**15.00**
3	½-6	12.00	9.00	2.50	7.00	4.00	**27.00**
4	½-8	18.00	12.00	2.50	7.00	4.00	**36.00**



BENCH PIPE VISES

Cat. No.	Wt. Lbs.	Net Price
BY-1¼	3½	**$ 1.69**
BY-2	11½	**3.27**
BY-2½	12	**3.85**
BY-3	16	**5.01**
BY-3½	17	**5.78**
BY-4	24	**6.93**
BY-5	30	**8.47**
BY-6	50½	**18.10**

DANDY PIPE VISE AND BENDER

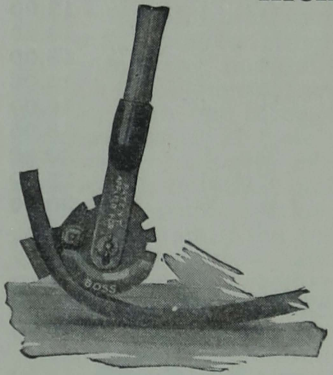


The Dandy Pipe Vise serves the purpose of a conduit bender, bench vise and pipe vise.

Without removing conduit from the vise it can be cut, threaded, reamed and bent. The tempered jaws can be replaced when worn out.

Cat. No.	Std. Pkg.	Wt. Lb.	Price Each
25	12	15	**$9.00**

"BOSS" SELF-ADJUSTING CONDUIT HICKEY



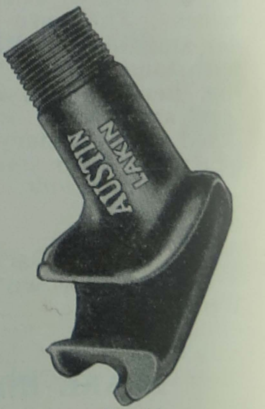
The "BOSS" will bend conduit from ⅜ inch to 1 inch without adjustment on part of the workman. The harder the pull the harder the grip. May be used on floor, with bench vise or with pipe standard at side of bench.

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Each
50	⅜ to 1	12	11

LAKIN CONDUIT BENDING HICKEY

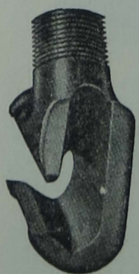
The jaws are strongly reinforced and will not break. Correctly bushed to prevent conduit from kinking. Will not slip. End of conduit may be placed into shank of handle for short bends or when a bend is to be worked down.

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Each
40	½	10	1¾
41	¾	10	2¼
42A	1	2	5¼



No. 40

SILVEY HICKEY



The only conduit bender on the market that will not slip nor kink or mash the conduit.

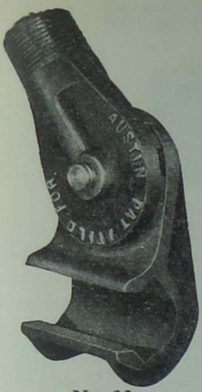
Easy to handle, light in construction and strong. It is all in the groove. It is constructed so that the pressure in bending the conduit is on the sides, leaving the top of conduit free from any pressure, so it can contract in process of bending, which prevents kinking and slipping.

Made in three sizes, as listed.

	½-Inch	¾-Inch	1-Inch
Price........................each	**$1.75**	**$2.25**	**$3.75**

AUSTIN CONDUIT HICKEYS

ADJUSTABLE HICKEY



No. 20

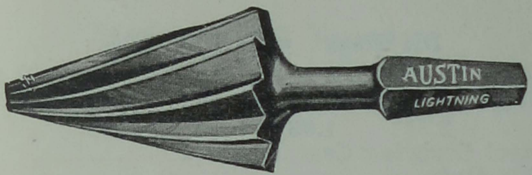
Has two unique features—adjustable handle and notched jaws. By loosening nut and turning handle a new position can be obtained, making the hickey practically a ratchet tool.

The non-slip notches in the end of the jaws prevent the tool from slipping off the conduit.

Packed in individual cartons for ready handling, storing and display.

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Each
20	½	10	2½
21	¾	5	3¼

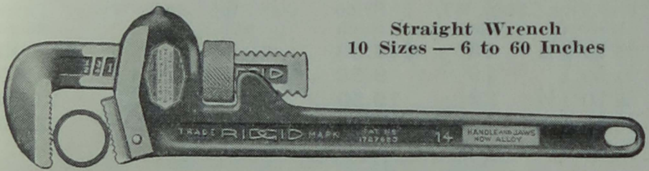
LIGHTNING CONDUIT REAMER



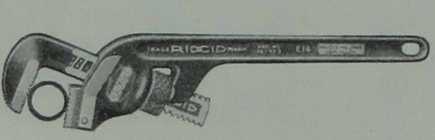
Cat. No.	Cap. Inches	Std. Pkg.	Wt. Lb. Std. Pkg.	Price Each
1242	¼ to 1	10	3¾	**$2.00**
1242½	¼ to 1¼	10	4¼	**3.00**
1244	¼ to 2	10	13½	**4.00**

PIPE WRENCHES

STRAIGHT AND END WRENCHES



Straight Wrench
10 Sizes — 6 to 60 Inches



End Wrench
8 Sizes—E6 to E36 Inches

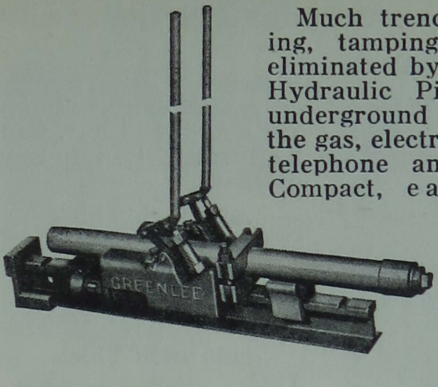
Size Inches	Capacity Inches	Wt. Lbs. Each	Wt. Lbs. 6 to Box	Complete *Price Metal Handle	Assembly Straight Handle	Assembly End Handle
6 &E 6	¾	½	2½	**$ 1.90**	**$ 1.75**	**$ 1.75**
8 &E 8	1	¾	5	**2.20**	**1.95**	**1.95**
10 &E10	1½	1¾	10¾	**2.85**	**2.50**	**2.50**
12 &E12	2	2¾	17	**3.35**	**2.85**	**2.85**
14 &E14	2	3½	20½	**3.85**	**3.45**	**3.45**
18 &E18	2½	5¼	32	**5.50**	**4.95**	**4.95**
24 &E24	3	8¾	52	**9.50**	**7.95**	**7.95**
36 &E36	4½	16¼	....	**20.00**	**15.00**	**15.00**
48	6	28	....	**30.00**	**25.00**	....
60	8	43¼	....	**45.00**	**35.00**	....

*10 & 10E sizes complete with Rubber Grip **$3.15.**

*14 & E14 sizes complete with Rubber Grip **$4.25.**

Rubber Grips—10-inch, **$4.80** per dozen; 14-inch, **$6.00** per dozen. Packed 12 in box.

GREENLEE HYDRAULIC PIPE PUSHER



Much trenching, back filling, tamping, etc., can be eliminated by using Greenlee Hydraulic Pipe Pusher for underground installation in the gas, electric, water-works, telephone and other fields. Compact, easily portable. Six speeds available for varying soil conditions, and these give pressures ranging from 6500 to 40,000 pounds. The power unit operates on a notched steel base, so that the pipe clamp is changed only every 4 to 7 feet, depending on the length of base used.

This pusher has a capacity for pipe 1¼ to 4-inch, inclusive, and weighs only 132 pounds without a base or other accessories. Shipping weight with 8½-ft. base and complete set of clamps, 480 pounds.

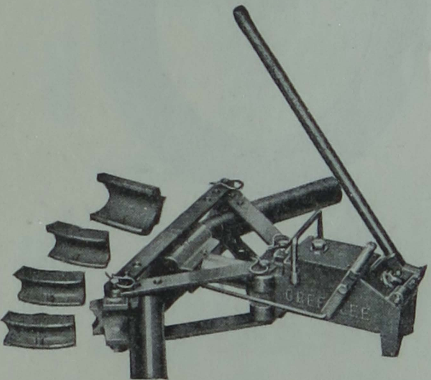
Price, No. **790** Hydraulic Pipe Pusher (power unit only) **$185.00**

Steel Bases, complete with pipe support and backing plate:

Lgth.	Lgth. Push	Price	Lgth.	Lgth. Push	Price
5½ ft.	4 ft.	**$30.00**	7½ ft.	6 ft.	**$40.00**
6½ ft.	5 ft.	**35.00**	8½ ft.	7 ft.	**45.00**

Quick-acting Clamps for following pipe sizes: 1¼-in. **$10.00**; 1½-in. **$10.75**; 2-in. **$11.50**; 2½-in. **$12.75**; 3-in. **$15.00**; 3½-in. **$17.50**; 4-in. **$22.50.**

GREENLEE CONDUIT BENDER



Bending is accomplished by hydraulic pressure, forcing the shoe against the conduit. The piece being bent is held by 2 rotating support castings arranged to accommodate different sizes of conduit.

Not only does it bend conduit fast, but it leaves a bend that is round and true with very little distortion in the metal. This bender is light for the work it does and can easily be carried from place to place. There is practically no limit to the degree of bend. Conduit is bent horizontally so that any length of pipe can be put in the machine without running against the floor, as would happen if the tool worked vertically.

Two sizes are built to handle various needs of the electrical trade. No. 770 bender is equipped with 5 shoes and No. 775 bender with 4 shoes which are packed in a metal box, having a convenient carrying handle.

Cat. No.	For Bending Conduit Size, Inches	Wt. Lbs. Shoes	Wt. Lbs. Bender	Price Complete
770	1¼, 1½, 2, 2½, 3	48	118	**$170.00**
775	3, 3½, 4, 4½	106	200	**235.00**

AUSTIN STEEL FISH TAPES

The M.B. AUSTIN COMPANY
CHICAGO, ILL.
Fish Tape

Made of flat tempered spring wire. Standard length 100 feet. Can be furnished in longer lengths.

.030 Inch Thick

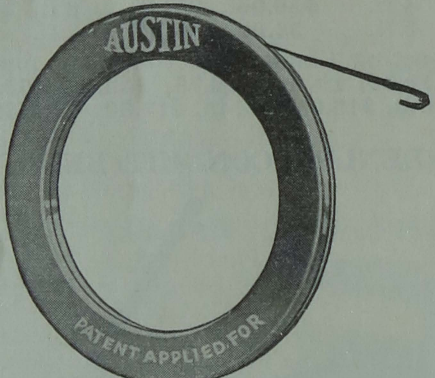
Cat. No.	Size In.	Wt. Lbs. 100 Ft.
315	1/8	1½
316	3/16	2
314	¼	2¾

.060 Inch Thick

Cat. No.	Size In.	Wt. Lbs. 100 Ft.
312	1/8	2½
310	3/16	3½
308	¼	5

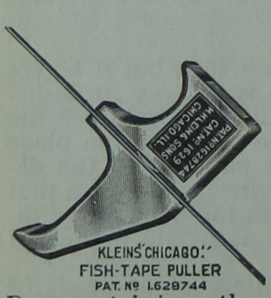
AUSTIN QUICK-WAY FISHING REEL

This new "Quick-Way" Fishing Reel not only provides a perfect grip for pulling but also permits winding of tape as cables are drawn in. This prevents any kinking of tape and keeps it perfectly coiled for easy handling from job to job.



Cat. No.	Length and Size of Tape Included with Each Reel	Std. Pkg.	Wt. Lbs. Each
15	100 Ft.—1/8 in. x 060 in.	10	5
16	100 Ft.—3/16 in. x 060 in.	10	5
17	75 Ft.—¼ in. x 060 in.	10	5

KLEIN'S FISH-TAPE PULLER

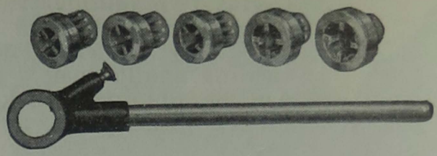


A simple, husky come-along for fish-tape. To engage puller on fish-tape place the tape sideways in slot and give puller a slight forward motion while pushing tape deeper into the slot. (This slips tape under the ratchet wheel.) User now has positive grip on the tape. Slide forward on tape to position for new bite. Does not injure the tape, 3¾ inches long, can be carried in the pocket.

Mfrs. No.	Description	Wt. Lbs. Per Doz.	Price Each
1629	For Standard Fish Tapes....	2½	**$2.00**
1629-A	Modified for No. 12 Iron Wire	2½	**2.00**

TOLEDO PIPE TOOLS

SMALL RATCHET THREADERS



Light and compact. Handy for close quarter work. Die heads changed instantly. Die segments can be removed easily for regrinding or replacement. Complete tool consists of ratchet handle and 1/8, ¼, 3/8, ½ and ¾-inch die heads complete with right hand dies. No additional charge for tool furnished for threading conduit.

No. 00 Ratchet Threader

Size Pipe Inches	Ship. Wt. Lbs.	Price Each	Size Pipe Inches	Ship. Wt. Lbs.	Price Each
1/8 to ¾	9¾	**$12.35**	3/8 to ¾	7	**$8.45**
¼ to ¾	8¼	**10.40**	½ to ¾	5½	**6.50**

Die Heads with R.H. Dies

1/8	2	**1.95**	½	2	**2.28**
¼	2	**1.95**	¾	2	**2.28**
3/8	2	**1.95**			

All Steel Carrying Case.. **1.25**
Ratchet Only **1.95**

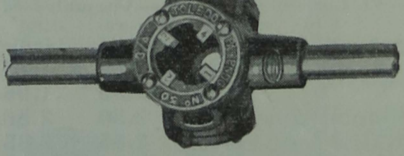
NO. 11 RATCHET THREADING DEVICE

Similar to the No. 00 but larger. Covers the full range from 1/8-inch to 1¼-inch if desired. No additional charge when furnished with conduit dies.

Size Pipe Inches	Ship. Wt. Lbs.	Price Each	Size Pipe Inches	Ship. Wt. Lbs.	Price Each
½ to 1¼	13	**$12.00**	¼ to 1¼	16	**$17.00**
½ to 1	10	**9.50**	¼ to 1	14	**14.50**
1/8 to 1¼	22	**19.50**	3/8 to 1¼	14	**14.50**
1/8 to 1	19	**17.00**	3/8 to 1	12	**12.00**

Die Heads with R.H. Dies

1/8	2	**2.50**	¾	2	**2.50**
¼	2	**2.50**	1	2	**2.50**
3/8	2	**2.50**	1¼	2	**2.50**
½	2	**2.50**	------	--	------



3-WAY THREADING DEVICES

A fully self-contained tool, perfectly balanced. Designed to prevent clogging with dirt or chips. Dies easily removed and reground or replaced at small cost. No extra charge when furnished with conduit dies.

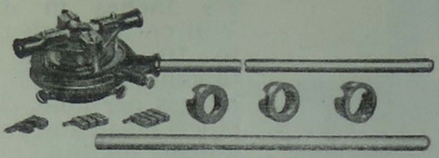
No. 30			No. 31		
Size Pipe Inches	Ship. Wt. Lbs.	Price Each	Size Pipe Inches	Ship. Wt. Lbs.	Price Each
3/8 to ¾	5½	**$6.00**	½ to 1	8½	**$6.75**

Dies Only R.H.

3/8", ½" or ¾" **$1.30** per set. 1" size **$1.63** per set

TOLEDO PIPE TOOLS

NO. 1A RATCHET THREADING DEVICE



The original easy operating 1 to 2-inch threader. Threads all sizes within its capacity with minimum effort. No. 1 plain without ratchet. No. 1A furnished with ratchet. Special tool required for producing conduit threads.

Cat. No.	Pipe Size Inches	Ship. Wt. Lbs.	Price Each
No. 1 Plain	1 to 2	19	**$ 9.00**
No. 1A Ratchet	1 to 2	24	**11.25**
Special Conduit Threaders			
No. 1 Plain	1 to 2	19	**14.50**
No. 1A Ratchet	1 to 2	24	**17.50**

OSTER PIPE MASTER

NO. 502 PORTABLE PIPE MACHINE

The Pipe Master

With quick-opening, adjustable die-heads and dies, or solid die adapter, as desired. Regular range ¼- to 2-inch pipe; extra range, ⅛-inch pipe; range with drive shaft, 2½- to 6-inch pipe; bolt range, ¼- to 1¼-inch N.C. or Whitworth, ¼- to 2¼-inch N.F. or B.S.F.

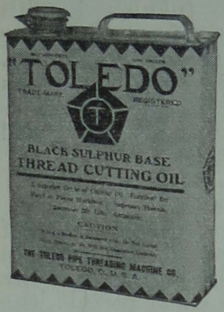
Nipples as short as 3½ inches in the 2-inch size can be threaded on both ends without using a nipple chuck; pipe or studs as short as 2½ inches can be held and threaded on one end. (Other sizes in proportion).

The "Pipe Master" is a complete, well-built, portable pipe machine of modern design, most practical for on the job, or shop use, and for industrial plant work. It is fully guaranteed.

Cat.	Dimensions Overall			Wt. Lbs.		Price
No.	Height	Width	Length	Net	Shpg.	Each
502	18	19½	46	280	375	**$470.00**

TOLEDO THREAD-CUTTING OIL

BLACK SULPHUR BASE THREAD-CUTTING OIL


"TOLEDO"
BLACK SULPHUR BASE THREAD CUTTING OIL
THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, O., U.S.A.

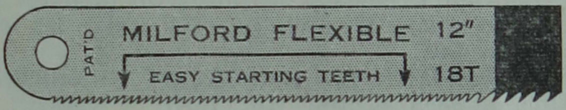
1-Gallon Can

High grade, superior thread-cutting oil. It is antiseptic, will not turn rancid, and assures smoother, cleaner threads, tighter joints and increased die service.

Sold only in sealed, red lithographed 1 gallon trade marked cans or sealed lithographed 5 gallon trade marked pails at a net price of **$1.10** per gallon, plus Federal Tax. Weight—5 gallon pail, 43 lbs.; 1 case of 6 gallon cans, 53 lbs.

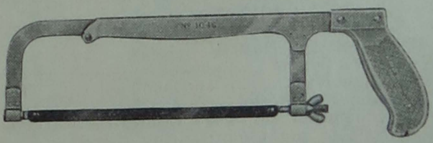
HACKSAW BLADES

MILFORD FLEXIBLE HACKSAW BLADES



Cat. No.	Lgth. In.	Wdth. In.	Gauge Thickness	Wt. Lbs. Per Gross	List Price Per Gross
14 Teeth per Inch					
FD1014	10	½	.025	4½	**$10.00**
FD1214	12	½	.025	5¾	**12.00**
FD2614	12	9/16	.025	6¾	**13.50**
18 Teeth per Inch					
FD818	8	7/16	.025	3¾	**8.00**
FD1018	10	½	.025	4½	**10.00**
FD1218	12	½	.025	5¾	**12.00**
FD2618	12	9/16	.025	6¾	**13.50**
24 Teeth per Inch					
FD824	8	7/16	.025	3¾	**8.00**
FD1024	10	½	.025	4½	**10.00**
FD1224	12	½	.025	5¾	**12.00**
FD2624	12	9/16	.025	6¾	**13.50**
32 Teeth per Inch					
FD832	8	7/16	.025	3¾	**8.00**
FD1032	10	½	.025	4½	**10.00**
FD1232	12	½	.025	5¾	**12.00**

CRESCENT HACK SAW FRAME



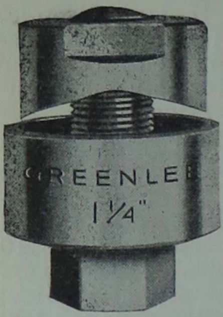
All steel frame, adjustable style. Handle is made of heavy gauge steel in the popular pistol grip style securely riveted to the frame. This is the most durable saw that can be bought. It will stand throwing around without breaking. Packed one in a box.

Cat. No.	Size Inches	Depth of Cut	Steel	Wt. Oz. Each	Price Each
1046	8-12 adj.	2½	.164x9/16	19	**$1.00**

GREENLEE KNOCKOUT PUNCHES

KNOCKOUT PUNCH SETS

No. 735 Knockout Punch Set



No. 735

This set is furnished with a leather case in which the punches are regularly packed. The set consists of 4 punches for cutting ⅞, 1 3/32, 1 11/32, 1 11/16-inch holes for ½, ¾, 1, and 1¼-inch conduit.

Improved Drive for ½-Inch Punch

To increase the length of service of the ½-inch Punch in cutting ⅞-inch holes in the heavier-gauge sheet metals, the No. 1387AV Drive Screw and No. 1388AV Drive Nut are available. These fit the standard No. AV121 Punch and No. AV122 Die for ½-inch conduit, as furnished with the No. 735 Set, and they take the place of No. AV322 ⅜-inch Cap Screw.

No. 737 Knockout Punch Set

This set is packed in a leather case, similar to No. 735, but it consists of only two punches for cutting 1 15/16 and 2⅜-inch holes to take 1½ and 2-inch conduit.

NOS. 738 AND 739 KNOCKOUT PUNCHES

No. 738

Shown here is the No. 738 Punch. The No. 739 is of same design, but larger. By adding these two punches to Nos. 735 and 737 Sets, enlargements can be made for all sizes of conduit from ½ to 3-inch inclusive. The No. 738 makes a 2⅞-inch hole for 2½-inch conduit, and No. 739 makes a 3½-inch hole for 3-inch conduit.

These two punches are not listed as a set, but are packed and sold individually.

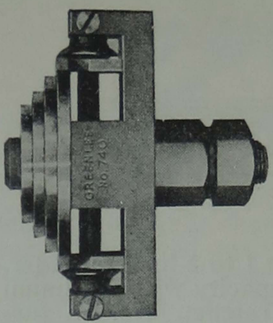
Cat. No.	Description	Wt. Lbs.	Price
735	Knockout Punch Set for ½, ¾, 1, and 1¼-inch conduit	2¾	$10.00
......	Improved Drive for ½-inch Punch (Drive Screw and Nut)	¼	1.10
737	Knockout Punch Set for 1½ and 2-inch conduit	4¼	10.00
738	Knockout Punch for 2½-inch conduit	5¾	14.00
739	Knockout Punch for 3-inch conduit	7¼	19.00

Extra Parts

Part	Price
No. 735 Knockout Punch Set	
AV121—⅞" Punch for ½" Conduit	$1.25
AV122—⅞" Die for ½" Conduit	.65
AV123—1 3/32" Punch for ¾" Conduit	1.45
AV124—1 3/32" Die for ¾" Conduit	.80
AV125—1 11/32" Punch for 1" Conduit	1.65
AV126—1 11/32" Die for 1" Conduit	.95
AV127—1 11/16" Punch for 1¼" Conduit	1.90
AV128—1 11/16" Die for 1¼" Conduit	1.05
AV322—⅜" x 1¾" Cap Screw	.25
AV249—¾" x 2⅞" Cap Screw	.35
Improved Drive for ½" Punch	
1387AV—Drive Screw	.75
1388AV—Drive Nut	.35
No. 737 Knockout Punch Set	
AV439—1 15/16" Punch for 1½" Conduit	2.30
AV440—1 15/16" Die for 1½" Conduit	2.00
AV441—2⅜" Punch for 2" Conduit	3.20
AV442—2⅜" Die for 2" Conduit	2.50
AV304—¾" x 3½" Cap Screw	.50
No. 738 Knockout Punch	
AV1429—2⅞" Punch for 2½" Conduit	5.40
AV1430—2⅞" Die for 2½" Conduit	5.00
AV1433—Drive Nut	1.35
AV1434—Drive Screw	2.75
No. 739 Knockout Punch	
AV1431—3½" Punch for 3" Conduit	8.00
AV1432—3½" Die for 3" Conduit	7.50
AV1433—Drive Nut	1.35
AV1434—Drive Screw	2.75

GREENLEE KNOCKOUT TOOLS

NO. 740 KNOCKOUT CUTTER



Greenlee Knockout Cutters enlarge holes up to 3½ inches in diameter. Will cut through metal up to 10 gauge or ⅛-inch thickness in 1½ minutes or less per hole. The hole is left clean and round, requiring no filing to smooth off the edges.

Operation is simple. The cutting is done by the feed and drive action of two wheel cutters.

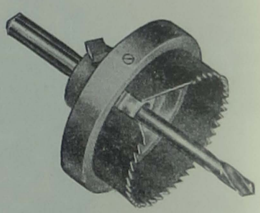
Knockout Cutter

Cat. No.	Description	Price Each
740	For 1½", 2", 2½", and 3" Conduit	$15.00

Extra Parts

Cat. No.	Description	Price Each
AV323	Lock Screws (2)	.30
AV324	Wheel Cutters (2)	.50
AV325	Feed Nut	.20
AV326A	Disc 1 15/16" for 1½" Conduit	.70
AV326B	Disc 2⅜" for 2 " Conduit	.80
AV326C	Disc 2⅞" for 2½" Conduit	1.00
AC326D	Disc 3½" for 3 " Conduit	1.20
AV327	Body	5.00
AV328	Shaft	.80
AV329	Drive Nut	.80
AV330	Retainer Screws (2)	.45
AV331	Cutter Bushings (2)	.25
AV332	Cutter Supports (2)	.65
AV333	Key Washer	.25
AV334	No. 7 Woodruff Key	.05

U. S. HOLE SAWS



These rotary hole saws cut clean finished round holes in steel, sheet metals, cast iron, slate, wood, plaster, bakelite and other materials that a hack-saw will cut. With the use of abrasives, marble, tile and porcelains may also be cut. Especially adaptable for installing car heaters, radios, etc. Up to 3½ inches diameter use ½-inch electric drill. 3¾ inches to 5 inches diameter use ⅝-inch electric drill. Cuts ¾-inch deep.

Size In.	Price Complete	Replacement Blades	Size In.	Price Complete	Replacement Blades
¾	$1.74	$0.42	2½	$3.00	$0.54
⅞	1.80	.42	2⅝	3.00	.54
1	1.86	.42	2¾	3.00	.54
1⅛	1.86	.42	2⅞	3.00	.54
1¼	1.98	.42	3	3.00	.66
1 5/16	1.98	.42	3⅛	3.00	.66
1⅜	1.98	.42	3¼	3.00	.66
1½	1.98	.42	3⅜	3.00	.66
1⅝	1.98	.42	3½	3.00	.66
1¾	2.10	.42	3¾	3.60	.78
1⅞	2.40	.42	4	4.80	.78
2	2.40	.42	4¼	5.40	.78
2⅛	2.70	.42	4½	6.00	.78
2¼	2.70	.42	4¾	6.60	.78
2⅜	2.70	.54	5	7.20	.78

DI ◇ FORGE TWIST DRILLS

Patented

Forged from a solid bar of Vanadium Tool Steel. This process produces a tougher and more durable drill than can be had by the machine process. It is intended to be used with a hand or electric hammer and not as a rotating drill.

In extensive tests this form of drill has proved its superiority over any other shape.

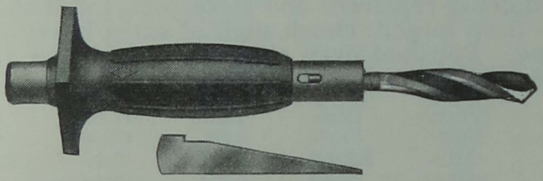
Diameter Inches	Length Overall Inches	Depth of Hole Inches	Wt. Lbs. Per Doz.	Price Per Doz.
3/16	2¾	1⅜	½	$10.80
¼	3¼	1¾	¾	10.80
5/16	4¼	2½	1	12.80
⅜	5	3	1½	14.80
7/16	5¼	3¼	1¾	18.80
½	5⅜	3¼	2	22.80
9/16	5½	3¾	2¾	26.80
⅝	5¾	4	3	28.80

DI ◇ FORGE Twist Drill Kits

Put up in sets containing one holder and one each 3/16, ¼, 5/16, ⅜, 7/16, and ½-inch DI ◇ FORGE twist drill points.

With Type B Holder, **$7.00** per Kit. With Type C Rubber Grip Holder, **$8.00** per Kit.

DIAMOND RUBBER GRIP DRILL HOLDERS

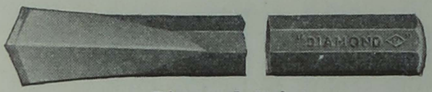


Style C drill holder is made of vanadium steel with a soft rubber grip with flange to protect the hand of the operator. Hexagon flange to prevent rolling.

Style C Drill Holder, per dozen, **$48.00.** Style B Drill Holder, not illustrated, **$24.00** per dozen.

DIAMOND N DRILLS

Four Point



Diamond Point

PRICE PER DOZEN

Lgth. In.	Diameter Drill, In. ¼	5/16	⅜	7/16	½	9/16 & ⅝	11/16 & ¾
12	$8.50	$8.50	$8.50	$9.00	$10.00	$12.00	$14.00
18	11.00	11.00	11.00	11.50	12.50	15.00	17.50
24	13.50	13.50	13.50	14.00	15.00	17.50	20.00

Lgth. In.	Diameter Drill, In. 13/16 & ⅞	1	1⅛	1¼	1⅜	1½
12	$16.00	$18.00	$24.00	$30.00	$40.00	$50.00
18	20.00	22.50	28.00	35.00	45.00	56.00
24	22.50	25.00	32.00	40.00	50.00	62.00

Lgth. In.	Diameter Drill, In. 1⅝	1¾	1⅞	2	2¼	2½
12	$60.00	$75.00	$90.00	$105.00	$135.00	$165.00
18	66.00	81.00	97.00	112.00	145.00	175.00
24	72.00	87.00	104.00	120.00	165.00	195.00

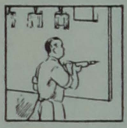
CARBOLOY MASONRY DRILL-POINTS

STEEL SHANK
HARD CARBOLOY TIP

Amazing new drill-point contains special metal harder than hardest steel. Goes through concrete, tile, slate, porcelain, etc., 50 to 75% faster. Drills cleaner, more accurate holes. Speeds up installation of expansion anchors. No special equipment needed—use in any rotary drill.

IN WALLS

IN BRICK



IN SLATE

IN CONCRETE

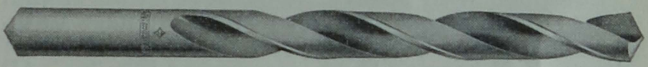
Drill Diam.	Shank Diam.	Shank Lgth.	Over-all Length	Wt. Oz. Each	Net Price Each
3/16	11/64	1½	3	2	$3.00
¼	7/32	1½	4	2	3.00
5/16	9/32	1½	4	2	3.25
⅜	11/32	1¾	4	3	3.60
7/16	⅜	1¾	6	4	4.00
½	⅜	1¾	6	5	4.50
9/16	7/16	2	6	6	4.70
⅝	½	2	6	7	5.50
11/16	½	2	6	8	6.25
¾	½	2	6	9	7.00
13/16	½	2	6	10	7.75
⅞	½	2	6	11	8.50
15/16	½	2	6	11	10.00
1	½	2	6	12	12.00
1 1/16	½	2	6	13	14.00
1⅛	½	2	6	14	14.50

Saves hours and days of drilling for electricians, plumbing and heating men, sign hangers, plant maintenance men, etc.

CLEVELAND STRAIGHT SHANK DRILLS

SHORT SET

No. 108, Carbon Steel **No. 917, High Speed Steel**

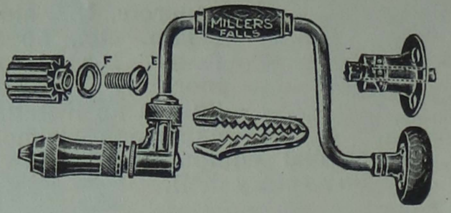


Diam. Inches	Price, per Dozen Carbon Steel	Price, per Dozen High Speed	Length Overall Inches	Std. Pkg. Dozen	Wt. Lbs.	Wt. Oz.
1/64	$1.50	$4.25	⅞	15	..	1
1/32	1.60	3.50	1½	10	..	1
3/64	1.55	2.40	1¾	6	..	1
1/16	1.60	3.00	2½	4	..	1½
5/64	1.65	3.10	2⅝	1	..	¾
3/32	1.70	3.20	2¾	1	..	1
7/64	1.75	3.40	2⅞	1	..	1¼
⅛	1.80	3.60	3	1	..	1¾
9/64	1.85	3.90	3⅛	1	..	2
5/32	1.90	4.20	3¼	1	..	3
11/64	2.00	4.50	3⅜	1	..	3
3/16	2.25	4.85	3½	1	..	4
13/64	2.50	5.25	3⅝	1	..	5
7/32	2.75	5.75	3¾	1	..	6
15/64	3.00	6.25	3⅞	1	..	7
¼	3.25	6.75	4	1	..	8
17/64	3.50	7.50	4⅛	1	..	9
9/32	3.80	8.25	4¼	1	..	11
19/64	4.00	9.00	4⅜	½	..	6
5/16	4.35	9.75	4½	½	..	7
21/64	4.70	10.75	4⅝	½	..	8
11/32	5.05	11.75	4¾	½	..	9
23/64	5.50	12.75	4⅞	½	..	10
⅜	6.00	13.75	5	½	..	11
25/64	6.50	15.00	5⅛	½	..	13
13/32	7.00	16.25	5¼	½	..	14
27/64	7.75	17.50	5⅜	½	1	....
7/16	8.50	18.75	5½	½	1	....
29/64	9.25	20.00	5⅝	½	1	3
15/32	10.00	21.25	5¾	½	1	3
31/64	11.00	22.75	5⅞	½	1	5
½	12.00	24.25	6	½	1	7

Drills for use in brass take above list prices.

MILLERS FALLS BRACES

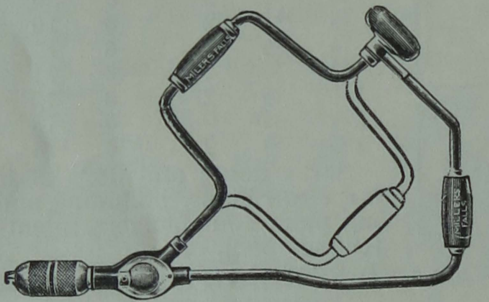
RATCHET BRACES



With Ball-Bearing Heads

Cat. No.	Sweep, In.	Std. Pkg.	Price Each
33	8	2	**$5.30**
32	10	2	**5.30**

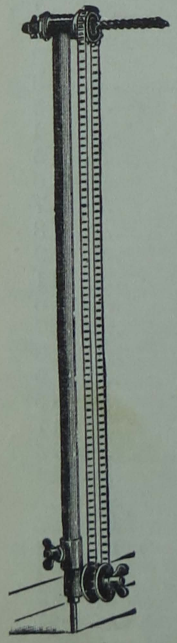
CORNER BRACES



Equipped with master chuck holding bit shank. ⅛ to ½-inch round and No. 1 M. T. Shanks. Case-hardened gears enclosed. Ball bearing at base of chuck. Ball bearing head. Hardwood handles. All exposed parts nickel-plated.

Cat. No.	Sweep, In.	Std. Pkg.	Price Each
502	10	2	**$10.00**

HENDERSON JOIST BORING MACHINE



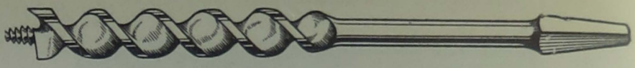
A Portable Hand Tool

Our machines are in constant use by wiring contractors and central stations. Will bore a hole straight through an overhead joist in a few seconds. Universal bit holder, uses standard bits. Adjustable to bore ceilings of different heights. Positive reverse to back out bit. Collapsible to easy carrying length.

Simply constructed, no complicated mechanisms to get out of order. Bores holes in overhead joists from four to six times as fast as a brace and bit. In starting to bore a hole one hand steadies the machine and the other pulls down on the chain which rapidly revolves the bit. As soon as the bit is fairly started both hands may be used to pull the chain. The holes are always straight through the joist.

Cat. No.	Description	Wt. Lb.	Price Each
772	Adjustable from 4½ to 12 feet......	17	**$25.00**

MEPHISTO AUGER BITS



No. 5 Bit. Designed for Plumbers and Electricians. Pulls itself in without pressure.

No. 9 Bit. Coarse U thread. Will bore all the way through any wood without pressure.

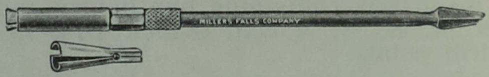
No. 900 Bit. For Electricians especially. Metal ceiling work will not harm the tool.

No. 5 and No. 9				No. 900	
Size In.	Price Each	Size In.	Price Each	Size In.	Price Each
10/16	**$0.80**	14/16	**$1.03**	18/16	**$1.37**
11/16	**.85**	15/16	**1.09**	19/16	**1.54**
12/16	**.91**	16/16	**1.15**	20/16	**1.71**
13/16	**.97**	17/16	**1.25**	22/16	**1.88**

Packed six in a box.

BIT EXTENSIONS

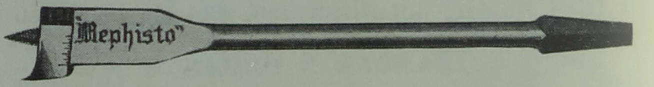
NO. 35 BIT EXTENSION



Follows 11/16 bit or larger. Not recommended for bits larger than 12/16, although is of ample strength to turn a ⅞ bit. Removable jaws; easily and quickly replaced; one piece socket and shank. Jaws drop forged; chuck shell of extra heavy steel tubing. Polished over all. Extra jaws per pair, **$0.35.** Packed one in a box.

Lgth. In.	Wt.Oz. Each	Price Each	Lgth. In.	Wt.Oz. Each	Price Each
12	10	**$2.40**	21	14	**$2.50**
15	11	**2.40**	24	16	**2.60**
18	13	**2.40**	30	18	**2.70**

MEPHISTO EXPANSIVE BITS



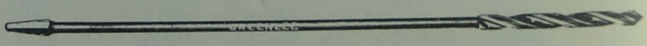
Cat. No.	Description	Price Per Doz.
87	Small, with 2 Cutters, ½ to 1½-inches	**$22.50**
88	Large, with 2 Cutters, ⅞ to 3 inches	**32.50**

Extra Cutters

Cat. No.	Description	Price Per Doz.
1	Cutting from ½ to ⅞ inches...............	**$3.60**
2	Cutting from ⅞ to 1½ inches...............	**4.50**
3	Cutting from ⅞ to 1¾ inches...............	**5.40**
4	Cutting from 1¾ to 3 inches...............	**6.30**

GREENLEE ELECTRICIAN'S BITS

NO. 48 BELL HANGER DRILL

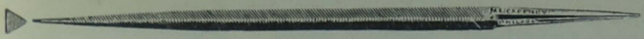


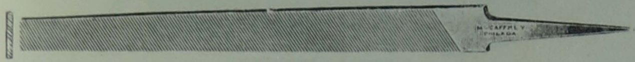
This drill is made with twist 3¾ inches long. Sizes in 32nds. Price per dozen.

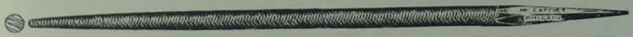
Size............	6	8	10	12	14	16
Price—						
12-inch......	**$7.50**	**$8.00**	**$8.75**	**$9.50**	**$10.50**	**$12.00**
18-inch......	**10.00**	**10.50**	**11.00**	**12.00**	**13.00**	**14.50**
24-inch......	**12.50**	**13.00**	**13.50**	**14.50**	**15.50**	**17.00**

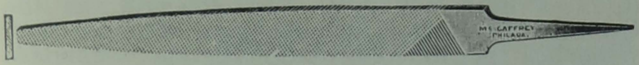
FIRST QUALITY TOOLS

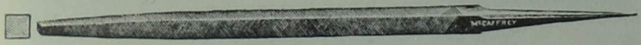
FILES

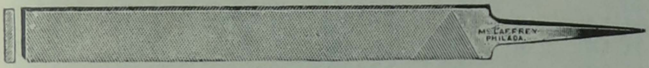

Slim Taper

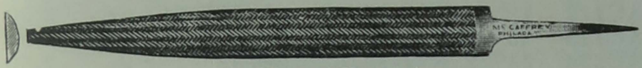

Mill Bastard


Round Bastard


Flat Bastard


Square Bastard


Hand Bastard


Half Round Bastard

Prices Per Dozen

Lgth.	Slim Tapers		Mill and Round		
In.	Single Cut	Double Cut	Bastard	2d Cut	Smooth
3	$2.10	$2.50	-------	-------	-------
3½	2.10	2.50	-------	-------	-------
4	2.20	2.60	$3.00	$3.50	$3.90
4½	2.30	3.00	-------	-------	-------
5	2.50	3.20	3.20	3.80	4.10
5½	2.90	3.50	-------	-------	-------
6	3.10	3.90	3.50	4.00	4.50
7	3.80	4.50	3.90	4.60	4.90
8	4.50	5.30	4.30	4.90	5.40
9	5.40	6.30	4.90	5.80	6.30
10	6.40	7.50	5.60	6.40	7.00
11	8.30	9.10	6.70	7.80	8.50
12	9.50	11.00	7.50	8.60	9.40
13	12.10	13.10	9.40	10.70	11.70
14	13.80	15.40	10.70	12.20	13.10

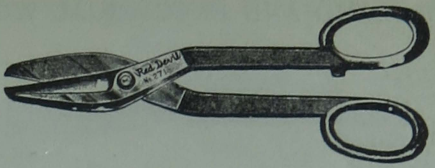
Prices Per Dozen

Lgth.	Flat			Square		
In.	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth
4	$3.70	$4.30	$4.70	$3.80	$4.60	$4.90
5	3.90	4.60	4.90	4.10	4.80	5.30
6	4.30	4.80	5.30	4.60	5.10	5.50
7	4.80	5.50	6.10	5.10	5.80	6.30
8	5.30	6.10	6.60	5.50	6.30	7.00
9	6.30	7.20	7.90	6.60	7.70	8.30
10	7.00	8.10	8.70	7.40	8.50	9.10
11	8.60	9.80	10.70	9.10	10.40	11.30
12	9.70	11.00	12.10	10.20	11.50	12.80
13	11.80	13.60	14.70	12.50	14.30	15.40
14	13.30	15.30	16.70	13.90	16.10	17.50

Prices Per Dozen

Lgth.	Hand and Pillar			Half Rd. and Three Sq.		
In.	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth
4	$3.70	$4.30	$4.80	$4.80	$5.60	$6.10
5	3.90	4.70	5.30	5.40	6.10	6.40
6	4.30	5.10	5.60	6.10	6.70	7.10
7	4.90	5.80	6.30	7.00	7.70	8.20
8	5.40	6.30	6.70	7.50	8.30	8.90
9	6.70	7.80	8.30	8.50	9.40	9.90
10	7.50	8.70	9.40	9.10	10.10	10.70
11	9.40	10.90	11.80	10.70	11.80	12.70
12	10.70	12.30	13.50	11.80	13.00	13.90
13	13.30	15.20	16.20	14.10	15.40	16.60
14	15.00	17.00	18.20	15.50	17.00	18.30

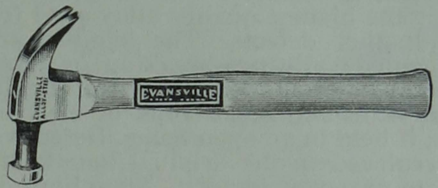
ELECTRICIANS' SNIPS



Mfrs. No.	Description	Price Each
271-12	9 Inches Long, 2 Inch Blade	$1.00
271-9	12 Inches Long, 4 Inch Blade	1.50
271-7	14 Inches Long, 4 Inch Blade	2.00

EVANSVILLE HAMMERS

ELECTRICIANS' HAMMER

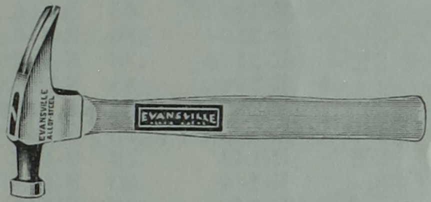


Long neck—ripping claw. Polished finish.

Cat. No.	Size Inches	Wt. Oz. Without Handle	Shpg. Wt. Lbs. Per Doz.	Price Each
77	11½	16	18	$........

Packed in individual box.

RIPPING HAMMER



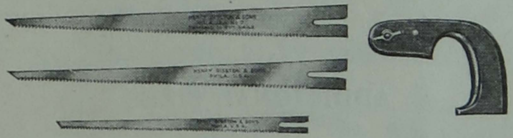
Adze eye—bell face. Polished finish.

Cat. No.	Size Inches	Wt. Oz. Without Handle	Shpg. Wt. Lbs. Per Doz.	Price Each
R716	11½	16	18	$........

Packed 6 to the box.

DISSTON COMPASS SAWS

NO. 7 NESTS OF SAWS



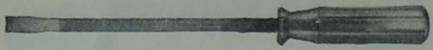
No. 7 Nests of Saws comprises three blades and one handle. Each blade is made for a special purpose—one for keyhole work, another for compass saw work, and a third, especially tempered, for cutting nails, lead pipe and light metals.

All blades are made of Disston steel, hardened and tempered; taper ground, slotted to fit cluster bolt and support pin in handle. Handle of beechwood, square top, weatherproof finish; cluster bolt and wing nut adjustment. Packed ¼ dozen in box.

Description	Length of Blade	Points to inch	Weight per Doz.	Price per Doz.
Keyhole Blade	10 inches	10	¾ lb.	$4.00
Compass Blade	14 inches	8	2 lbs.	6.00
Nail Cutting Blade	14 inches	12	2 lbs.	8.00
Handle	....	....	4¼ lbs.	6.00
No. 7 Complete	....	....	9 lbs.	24.00

XCELITE SHOCKLESS SCREWDRIVER

FOR RADIO AND ELECTRICAL WORK



The first shockproof transparent handle screwdriver was XceLite, introduced nine years ago. It created a sensation and has been widely imitated. Added improvements consist of—a newly designed handle with better grip, yet easier on the hands.

XceLite shockless screwdrivers are guaranteed to be perfect in material and workmanship. The blades are the highest quality alloy steel free from flaws and other defects. The handles are guaranteed against splitting, breaking or burring on the end under normal use. They are further guaranteed to withstand 5,000 volts of electricity but will burn if held in an open flame. Defective blades will be replaced in the original handle if tool is returned to dealer or factory. Time limit one year from date of purchase.

Size Blades Inches	Wt. Lbs. Per Doz.	Round		Square	
		Cat. No.	Price Each	Cat. No.	Price Each
⅛x4	1	R-184	$0.45	....	....
⅛x6	1	R-186	.50	....	....
⅛x8	1	R-188	.55	....	....
⅛x10	1	R-1810	.60	....	....
3/16x3	2	R-3163	.65	S-3163	$0.70
3/16x4	2½	R-3164	.70	S-3164	.75
3/16x6	2½	R-3166	.75	S-3166	.80
3/16x8	3	R-3168	.85	S-3168	.90
3/16x10	3	R-31610	.95	S-31610	1.00
¼x1	1¾	....	....	S-141	.60
¼x2	2½	R-142	.75	S-142	.80
¼x4	3	R-144	.80	S-144	.85
¼x6	2½	R-146	.85	S-146	.90
¼x8	4	R-148	.90	S-148	1.00
5/16x1	1¾	....	....	S-5161	.60
5/16x6	5	....	....	S-5166	1.10
5/16x8	5½	....	....	S-5168	1.15
5/32x8	1½	R-5328	.60	....	....

Radio and Electrical Display (contains 55 screwdrivers, various sizes) complete......$42.35

Display only 1.50

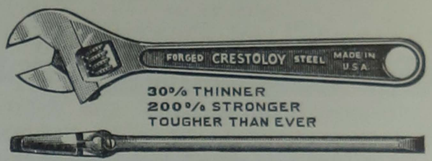
ADDITIONAL SIZES

Size Blades Inches	Wt. Lbs. Per Doz.	Round		Square	
		Cat. No.	Price Each	Cat. No.	Price Each
⅛x1½	½	R-181	$0.25	....	....
⅛x2	¾	R-182	.40	....	....
⅛x3	¾	R-183	.25	S-183	$0.45
⅛x5	1	....	....	S-185	.50
3/16x1	2	....	....	S-3161	.55
5/16x2	3	....	....	S-5162	.80
5/16x6	5	R-5166	1.00	....	....
5/16x8	5¼	R-5168	1.10	....	....
5/16x10	6½	....		51610	1.20
5/16x12	7	....	....	51612	1.25
⅜x8	7½	....	....	S-388	1.40
⅜x12	11½	....	....	S-3812	1.90
⅜x18	14½	....	....	S-3818	2.10
5/32x3	1	R-5323	.50	....	....
5/32x4	1	R-5324	.50	....	....
5/32x5	1	R-5325	.50	....	....

CRESCENT TOOLS

CRESTOLOY WRENCHES

Single and Double End Models



Wrenches made of Crestoloy steel are 30 percent thinner than those of ordinary steel. This thinness does not mean less strength, as the Crestoloy wrench is 200 per cent stronger than wrenches of the conventional type. Standard finish is a heavy plating of chromium.

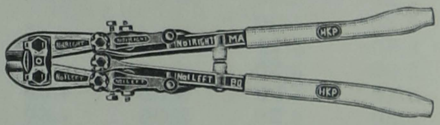
Single End Wrenches

Cat. No.	Size In.	Cap. In.	Thick. of Head		Wt. Pkd.	Price Each
			Thickest Point	Tip of Jaws		
AC14	4	½	10/32	4/32	2 oz.	$1.00
AC16	6	¾	13/32	7/32	5 oz.	1.00
AC18	8	15/16	15/32	8/32	8 oz.	1.25
AC110	10	1⅛	18/32	12/32	13 oz.	1.50
AC112	12	1 5/16	24/32	15/32	24 oz.	2.00
AC115	15	1 11/16	30/32	19/32	53 oz.	3.00
AC124	24	2 7/16	1-13/32	28/32	9 lb.	7.50

HKP WIRE CUTTERS

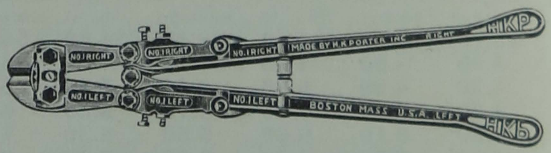
ELECTRIC WIRE CUTTERS

With Insulated Handles



Cat. No.	Length Ins.	Opening Ins.	Price Each	
			Handles Insulated	Handles not Insulated
0	20	⅝	$8.25	$5.75
1	26	¾	10.75	7.25
2	32	1⅛	12.75	9.00
3	37	1¼	16.50	11.50

BOLT CLIPPERS—RIGID TYPE*

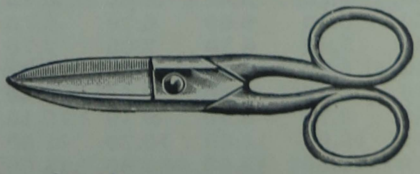


All parts made in duplicate to standard gauges. Screw provides ample adjustment.

Cat. No.	Lgth. In.	Cuts Bolts In.	Price Each	Cat. No.	Lgth. In.	Cuts Bolts In.	Price Each
0	18	5/16	$5.50	2	30	½	$8.75
1	24	⅜	7.00	3	36	⅝	11.25

*Prices of Swivel Type furnished on application.

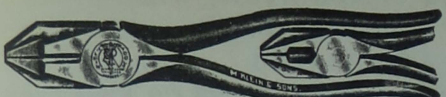
ELECTRICIANS' SCISSORS



Mfrs. No.	Length Inches	Finish	Price Each
2100-5	5	Nickel Plated	$1.70

KLEIN PLIERS

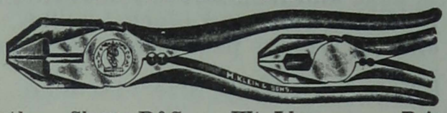
NO. 201 SIDE CUTTING PLIER



Handles temper blued, polished head and jaws, scored jaws.

Cat. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
201-5	5	3	**$4.60**
201-6	6	5	**4.90**
201-7	7	7½	**5.60**
201-8	8	12	**5.90**
201-9	9	12½	**7.60**

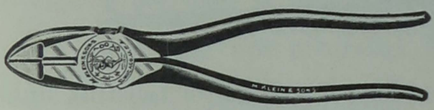
NO. 212 SIDE CUTTING PLIER



Same as No. 201 with addition of sleeve joint twister.

Cat. No.	Lgth. In.	Sleeve B&S Gauge Opening	Wt. Lbs. Per Doz.	Price Each
212-6	6	14	5	**$5.60**
212-7	7	14	7½	**6.00**
212-8	8	10	12	**7.60**

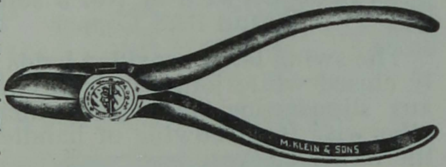
NO. 201-N.E. SIDE CUTTING PLIER



Identical with series No. 201 except that the nose is rounded to permit easier working in confined space and all edges rounded to prevent nicking of wire. Polished head and handles temper blued. Standard package 6.

Cat. No.	Size In.	Wt. Lbs. Per Doz.	Price Each	Cat. No.	Size In.	Wt. Lbs. Per Doz.	Price Each
201-6-NE	6	5	**$4.90**	**201-8-NE**	8	12	**$5.90**
201-7-NE	7	7½	**5.60**	**201-9-NE**	9	12½	**7.60**

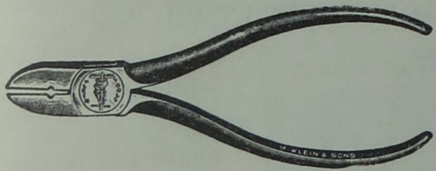
NO. 202 OBLIQUE CUTTING PLIER



For close cutting in confined places, will cut silk insulation cleanly. Polished head and blued handle. Lap joint.

Cat. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
202-5	5	4	**$4.00**
202-6	6	4¼	**4.30**

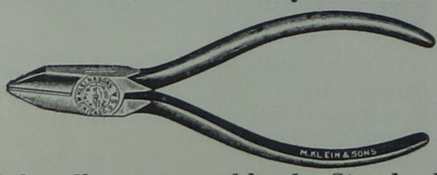
NO. 240 OBLIQUE CUTTING PLIER



Identical with No. 202 series with the addition of a notch in cutting knives for stripping small wires. Standard package 6.

Cat. No.	Size In.	Wt. Lbs. Per Doz.	Price Each	Cat. No.	Size In.	Wt. Lbs. Per Doz.	Price Each
240-5	5	4	**$4.30**	**240-6**	6	4¼	**$4.60**

NO. 202-A NARROW NOSED OBLIQUE PLIER



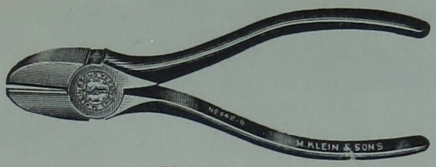
Has narrow hinge and pointed nose, enabling convenient use in confined space. Polished head and handles temper blued. Standard package 6.

Cat. No.	Size In.	Wt. Lbs. Per Doz.	Price Each	Cat. No.	Size In.	Wt. Lbs. Per Doz.	Price Each
202-5-A	5	4	**$4.00**	**202-6-A**	6	4¼	**$4.30**

KLEIN PLIERS

NO. 242 OBLIQUE CUTTING PLIER

Heavy Pattern

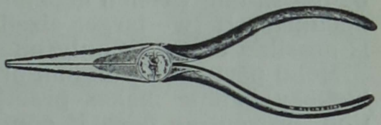


Similiar in construction to No. 202. It is made heavier to meet the requirements of those desiring a stronger plier for general work. Polished head and handles temper blued. Standard package 6. Weight per dozen, 4¾ pounds.

Price, No. **242-6**, Size 6-inch....................each **$4.40**

NO. 301 LONG NOSE PLIER

Without Cutters

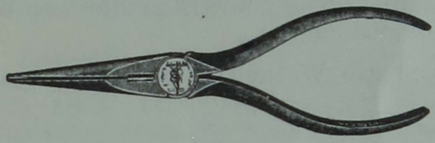


Polished heads and blued handles. Scored jaws.

Cat. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
301-5	5	2¾	**$3.40**
301-6	6	3	**3.70**

NO. 203 LONG NOSE PLIER

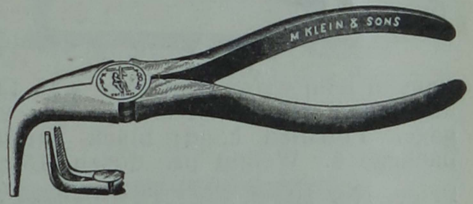
Side Cutting



Same as No. 301 series with addition of cutting knives.

Cat. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
203-5	5	2¾	**$4.10**
203-6	6	3	**4.60**

NO. 302 LONG CURVED NOSE PLIER

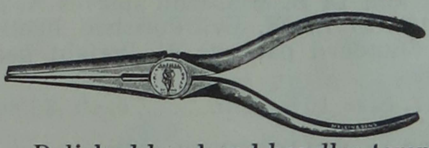


A handy plier for working around switchboards; the nose being bent at an angle of 45 degrees. Lap joint; scored jaws. Polished head and handles temper blued. Standard package 6. Weight per dozen, 2¾ pounds.

Price, No. **302-6**, Size 6-inch.................each **$4.90**

NO. 206 LONG FLAT NOSE PLIER

Side Cutting

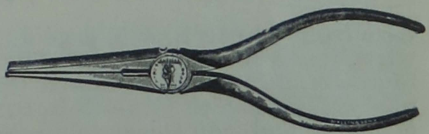


Useful plier for working in deep and narrow places. Lap joint, scored jaws.

Polished head and handles temper blued. Standard package 6. Weight per dozen, 2½ pounds.

Price, No. **206-6**, Size 6-inch.................each **$4.50**

NO. 205 LONG DUCK BILL PLIER

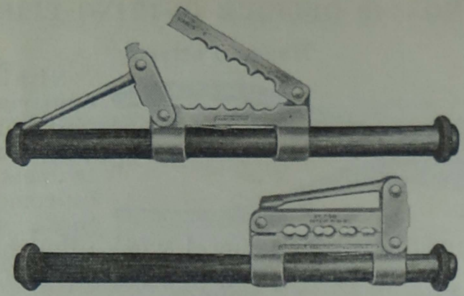


Fitted with cutting knives which cut easily and true.

Polished head and handles temper blued. Standard package 6. Weight per dozen 3 pounds.

Price, No. **205-6**, Size 6-inch.................each **$4.50**

CRESCENT SLEEVE WRENCHES



Capacity of No. 750 Sleeve Wrenches, any sleeve, copper or aluminum, up to and including No. 3/0 solid copper, No. 2/0 stranded copper or No. 1/0 ACSR. Two, three or four openings can be put in one wrench depending on the size of the openings. If two larger sized openings are used it is possible to get in only one of the smaller sizes.

Metal parts are cadmium plated. Oil impregnated hickory handle makes practically perfect insulation, preventing flash if contacted with hot wire. Jaws and cam lever are heat treated, forged steel.

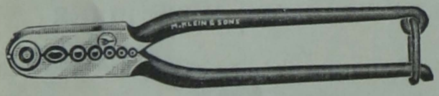
Over all length, 14½ or 20 inches; weight, 2¼ pounds. Packed two in a box.

Handles 14½ inches long are standard on wrenches taking a sleeve smaller than No. 1/0. Wrenches taking No. 1/0 or larger are equipped with 20-inch handles. The 20-inch handles can be furnished at no extra charge.

Price, **No. 750** Sleeve Wrench, / on application.

KLEIN SPLICING CLAMPS

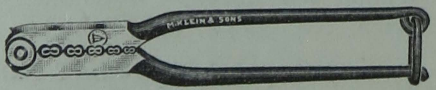
NO. 102-3 SPLICING CLAMP



Has five round holes and one oval hole accommodating all sizes of iron wires from Nos. 4 to 14 B. W. G. and all sizes of copper wire from Nos. 2 to 12 B. & S. gage. Polished head; black handles. Standard package 6. Weight per dozen, 15 pounds.

Price, No. **102-3**, Size 10¾-inch............each **$6.40**

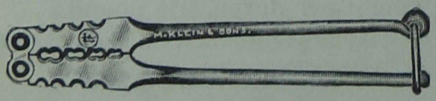
NO. 105-17 SPLICING CLAMP



Has five sleeve holes for twisting double tube sleeves. Copper sleeves Nos. 6, 8, 10, 12 and 14 B. & S. iron sleeves Nos. 8, 10, 12, 14, 16, 19 B. W. G. Polished head; black handles. Standard package 6. Weight per dozen, 15 pounds.

Price, No. **105-17**, Size 10¾-inch............each **$6.40**

NO. 132-12 SPLICING CLAMP

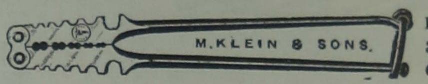


Has four round holes accommodating all sizes of copper wire from 6 to 12 B. & S. gage and all sizes of iron wire Nos. 8 to 14 B. W. G. The reverse side has four sets of chambers adapted for twisting double tube copper sleeve joints Nos. 8, 10, 12, 14, 17 B. & S. gage and iron sleeve joints Nos. 10, 12, 14, 16, 19, B.W.G. Polished head and black handles. Standard package 6. Weight per dozen, 10 pounds.

Price, No. **132-12**, Size 9-inch..................each **$6.70**

KLEIN SPLICING CLAMPS

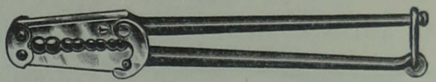
NO. 132-15 COMBINATION WIRE AND SLEEVE CLAMP



Has five round holes and will accommodate all sizes of iron wire Nos. 6 to 14 B. W. G. and all sizes of copper wire Nos. 4 to 12 B. & S. gage. One large oval hole for guy strand .437x.624. The reverse side has five sets of chambers adapted for twisting double tube copper sleeve joints Nos. 6 to 17 B. & S. gage and iron sleeve joints Nos. 8 to 19 B. W. G. Polished head and black handles. Standard package 6. Weight per dozen, 15½ pounds.

Price, No. **132-15**, Size 11¼-inch............each **$9.10**

NO. 132-48 COPPERWELD SLEEVE CLAMP



This clamp has four chambers for twisting single tube (oval) sleeves used for making joints on Copperweld conductors 4A, 6A, 8A and 3 No. 12. These chambers also accommodate single tube (oval) sleeves as follows:

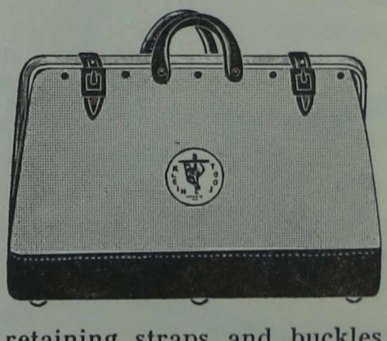
4A	Copperweld or No. 1 solid B&S or No. 2 strand B&S Copper
6A	Copperweld or No. 3 solid B&S or No. 4 strand B&S Copper
8A	Copperweld or No. 4 solid B&S or No. 5 strand B&S Copper
3 No. 12	Copperweld or No. 5 solid B&S or No. 6 strand B&S Copper

The swing latch provided holds the head securely closed while joint is being twisted, preventing any slippage or "burning" which might develop otherwise from bowing of handles when twisting the larger sleeves.

Price, No. **132-48**, Size 11¼-inch........each **$10.60**

KLEIN TOOL BAGS

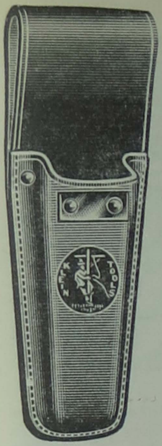
NO. 5102 LINEMEN'S TOOL BAG



Extra heavy white duck reinforced all around the bottom with heavy bag leather, 3¼ inches up. The bottom is made of heavy leather outside and duck inside, lock stitched all around. Has harness leather handles and two retaining straps and buckles. Mouth of bag is formed by a 12-gauge steel frame; and the canvas is clinched between this and inside secondary steel frame.

Cat. No.	Size In.	Wt. Lbs.	Price Each	Cat. No.	Size In.	Wt. Lbs.	Price Each
5102-12	12	2⅝	**$ 8.30**	**5102-20**	20	3⅞	**$11.50**
5102-14	14	3	**9.00**	**5102-22**	22	4	**12.50**
5102-16	16	3½	**10.00**	**5102-24**	24	4½	**13.50**
5102-18	18	3¾	**10.50**	....	....	.....	....

KLEIN TOOL CASES



DETACHABLE HOLSTER

Made of heavy harness leather with loop to slip over belt. Carries 7, 8, or 9 inch side cutting pliers. Mouth of pocket framed to hold open position permanen

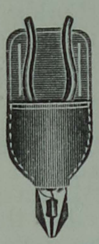
Mfrs. No.	Length Inches	Wt. Lbs. Per Doz.	Price Each
5116	10	6	**$3.00**

PLIER POCKETS

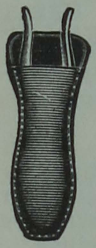
No. 5107 is made of good quality leather. For carrying pliers when at work. Has slits through which belt is inserted.

No. 5112 same as No. 5107 except plier does not protrude through.

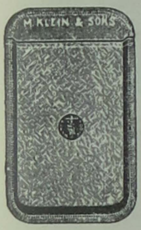
Mfrs. No.	Size Inches	Wt. Lbs. Per Doz.	Price Each
5107	3½x8½	2½	**$1.30**
5112	3½x9	5¼	**1.70**



No. 5107



No. 5112

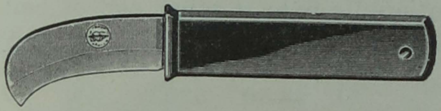


HIP POCKET TOOL CASE

Made of good quality leather for carrying pliers or other tools in hip pocket; prevents cutting of clothes or possible injury to the person.

Mfrs. No.	Size In.	Wt. Lbs. Per Doz.	Price Each
5111	5x7	2½	**$2.00**

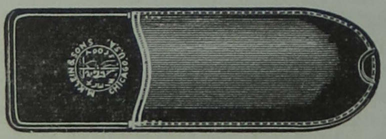
KLEIN'S SKINNING KNIFE



This skinning knife has half hard rubber handle molded on securely and provides adequate insulation as well as a generous grip. Shouldered out at the blade to prevent accidental cutting of glove or finger. Shape of blade brings the point below the curve. Back of blade ground flat for scraping. Hole in handle is through the solid rubber. Forged from first quality cutlery steel individually tempered.

Price, No. **1560-3** Skinning Knife..........each **$3.00**

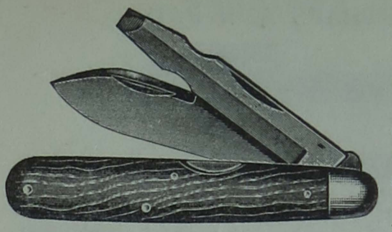
KLEIN'S KNIFE POCKET



This harness leather pouch is made specially for No. 1560-3 skinning knife. It can be carried in hip pocket or riveted to belt. Lock stitched with genuine hot waxed linen thread. An opening at bottom prevents accumulation of water or dirt. Provides a safe method for carrying a useful knife.

Price, No. **5163** Knife Pocket................each **$1.70**

KLEIN'S "XELA" ELECTRICIAN'S KNIFE



Blades are made of high grade cutlery steel carefully tempered.

Locking feature on screw-driver blade is simple and of such construction that it does not wear out.

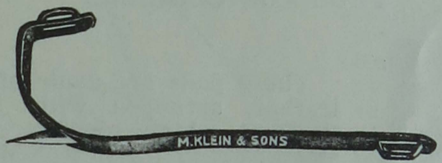
It automatically locks the blade when open, yet a slight pressure of the thumb releases the lock and permits blade to be closed readily; handle of cocobola, hard and durable.

Price, No. **1550-2** Double Blade..............each **$2.70**

KLEIN'S CLIMBERS

NO. 1900 AND 1901 CLIMBERS

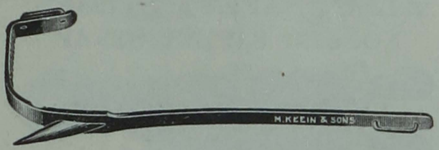
Standard Pattern



Leg iron or shank is made of spring steel, the gaff or spur is forged from tool steel. Stock sizes 15, 15½, 16, 16½, 17, 17½ and 18 inches, measured from the instep to end of shank. Other sizes to order.

Cat. No.	Description	Wt. Lbs. per Pair	Price per Pair
1901	Punched Strap Loops..............	3⅝	**$7.20**
1900	Riveted Strap Loops................	3⅝	**7.20**

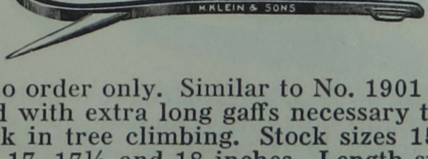
NO. 1903 LIGHTWEIGHT CLIMBERS



These climbers are similar to No. 1900, but are made as light as possible in the leg iron consistent with good safety practice. Stock sizes 15, 15½, 16, 16½, 17, 17½, and 18 inches, measured from instep to end of shank. Other sizes to order.

Cat. No.	Description	Wt. Lbs. per Pair	Price per Pair
1903	Riveted Strap Loops................	2¾	**$7.20**

NO. 1907 TREE CLIMBERS

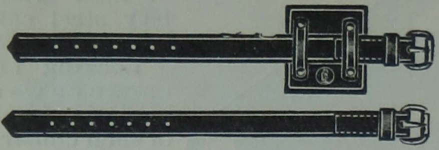


Made to order only. Similar to No. 1901 but are furnished with extra long gaffs necessary to penetrate bark in tree climbing. Stock sizes 15, 15½, 16, 16½, 17, 17½ and 18 inches. Length spur underside, 3 inches.

Cat. No.	Description	Wt. Lbs. per Pair	Price per Pair
1907	Punched Strap Loops..............	3¾	**$8.00**

KLEIN'S CLIMBERS

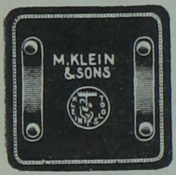
CLIMBER STRAPS AND PADS



The set consists of two upper straps with 4x4 plain leather pads and two lower straps as shown, made of select harness leather, extra heavy Drop Forged roller buckles. Heel straps overall, 22 inches long by 1¼ inches wide; calf strap overall, 22 inches long by 1¼ inches wide.

Cat. No.	Description	Wt. Lbs., Per Doz. Sets	Price Per Set
5301-1	With Plain Pads	15	**$7.10**
5301-2	With Sheep Lined Pads	16	**7.50**
5301-3	With Felt Lined Pads	16	**7.50**
			Per Pair
5301-4	Without Pads (2 Straps)	6	**2.90**
5301-5	With Plain Pads (2 Straps)	9	**4.20**

PADS FOR CLIMBERS

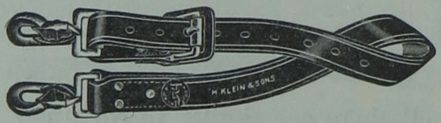


These pads are made of select leather, arranged with loops through which to slip climber straps.

Cat. No.	Description	Size Inches	Wt. Lbs. Doz. Sets	Price per Pair
8200	Sheep-lined	4 x 4	4	**$1.70**
8201	Felt-lined	4 x 4	5	**1.70**
8202	Plain Leather	4 x 4	5	**1.30**
	Bell System Type			
8203	Plain Leather	3¾ to 2¾x6¼	3	**2.00**
8204	Sheep-lined	3¾ to 2¾x6¼	3	**2.30**
8205	Felt-lined	3¾ to 2¾x6¼	3	**2.30**

KLEIN SAFETY STRAPS

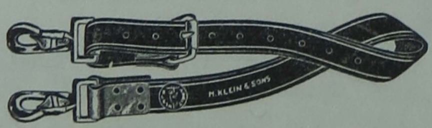
NO. 5251 SAFETY STRAP



Made of first quality harness leather. All rivets solid copper, hand set with burrs. Snaps and buckles solid steel drop forgings tested to 1500 pounds, galvanized finish. Leather wear pad at buckle. Straps may be lengthened or shortened by adjusting buckle. Size, 1¾ inches wide by 5 feet 8 inches long.

Cat. No.	Description	Wt. Lbs. Per Doz.	Price Each
H-5251	With Hank's Snaps	30	**$9.70**
5251	With Standard Solid Snaps	30	**9.70**

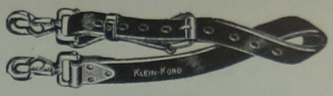
NO. 5253 SAFETY STRAP



These straps are cut from first quality harness leather. Extra heavy drop forged roller snaps and buckles tested individually to 1500 pounds, galvanized finish. Reinforced both ends with stainless steel clips riveted through double thickness of the leather. Size, 2 inches wide by 5 feet 8 inches long. Weight per dozen, 39 pounds.

Price, No. **5253** Safety Strap..................each **$12.40**

"KLEIN-KORD" SAFETY STRAPS



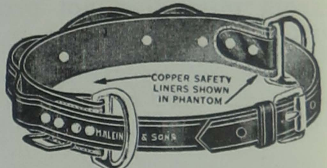
Made of 6 plies of heavy close woven, long fibre cotton, laid in rubber and vulcanized, producing a strong, flexible strap to give long wear and service. Cross cords are extra strength, permitting use of tongue type buckle without risk of slitting or ripping under severe tension.

Straps are made in 3 styles as listed. Regulation length, 5 feet 8 inches; width 1¾ inches. For longer straps add **$1.00** per extra foot. Snaps and D rings are drop forged and individually tested to 1500 pounds.

Mfrs No.	Description	Width Inches	Price Each
5233	Standard Snaps	1¾	**$9.70**
H5233	Hank's Snaps	1¾	**9.70**
KL5233	Klein-Lok Snaps	1¾	**10.70**

KLEIN'S TOOL BELTS

NO. 5202 TOOL BELT

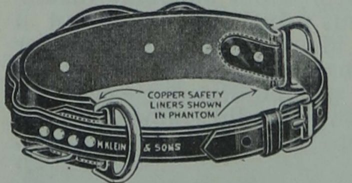


Made of first quality harness leather. The cushion 2¼ inches wide carries the D rings. The outer or loop layer is formed into tool loops by riveting to the cushion. It also passes through the D rings and is furnished with a strong drop forged buckle tested to 1500 pounds. D rings are solid steel drop forgings tested to 1500 pounds. Surfaces taking the wear of D rings are protected with copper safety liners riveted through full thickness of belt. All rivets are solid copper set with burrs and sewing is with hot waxed harness thread, lock stitched. D rings and buckle galvanized finish.

Made in lengths 36, 38, 40, 42, 44 and 46 inches. Specify length required measuring from end of buckle to middle hole at other end of belt.

Hank's D Rings				**Standard D Rings**			
Cat. No.	Width In.	Wt.Lbs. per Doz.	Price Each	Cat. No.	Width In.	Wt.Lbs. per Doz.	Price Each
H5202	2¼	30	**$9.50**	**5202**	2¼	30	**$9.50**

NO. 5204 TOOL BELTS



Made of select first quality harness leather. Cushion carries D rings. Outer or loop layer is 1½ inches wide formed into tool loops by riveting to the cushion. It also passes through D rings and is furnished with a strong drop forged buckle. D rings are solid steel drop forgings of improved design tested to 1500 pounds.

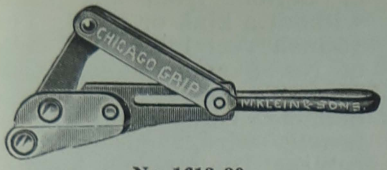
Surfaces taking wear of D rings are protected with copper safety liners riveted through full thickness of belt. All rivets are solid copper set with burrs and sewing is with hot waxed harness thread, lock stitched. D rings and buckle galvanized finish. Loop strap is 1¼ inches wide formed into 6 loops.

Made in lengths 36, 38, 40, 42, 44 and 46 inches. Specify length required measuring from end of buckle to middle hole at other end of belt.

Hank's D Rings				**Standard D Rings**			
Cat. No.	Width In.	Wt.Lbs. per Doz.	Price Each	Cat. No.	Width In.	Wt.Lbs. per Doz.	Price Each
H5204	3½	33	**$10.20**	**5204**	3½	33	**$10.20**

KLEIN'S WIRE GRIPS

CHICAGO GRIPS



No. 1613-30

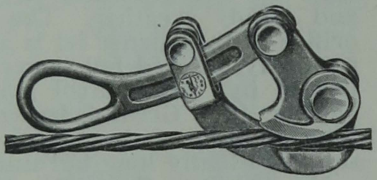
Main body piece and lever are of forged steel. Draw parts are wrought steel. Gripping jaws are machine smoothed and rivets machine turned. Draw link is so arranged that it cannot drop and interfere with line when grip is applied.

DRAW LINK TYPE

For Bare Wire

Cat. No.	Size Wire and Smaller	Wt. Lbs.	Maximum Conductor	Price Each
1613-30	6	1½	3/16	**$4.00**
1613-40	0	8	⅜	**7.10**
1613-50	0000	8	15/32	**12.00**
For Messenger Strand and Heavy Cables				
1628-5B	8,000 lb.	5½	½	**17.50**
1628- 6	8,000 lb.	8½	⅜	**22.40**
1628-16	16,000 lb.	14	⅝	**40.00**
For Insulated Wire				
1611-20	4	2¼	7/16	**6.70**
1611-30	00	3¾	17/32	**8.40**
1611-40	0000	7¼	11/16	**13.30**

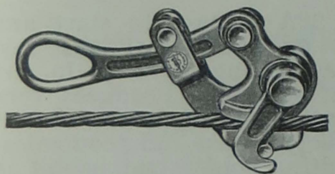
NO. 1604 HAVEN'S STEEL GRIP



Forged from crucible tool steel; the eccentric or dog is hand cut, hardened and tempered; rivets are steel, machine turned; will not slip, heavy strain only making it grip tighter.

Cat. No.	Description	Wt. Lbs. Per Doz.	Price Each
1604-10	For No. 4 wire and smaller	12	**$3.80**
1604-20	For ½-inch wire and smaller	30	**5.60**

NO. 1625-20 IMPROVED HAVEN'S GRIP

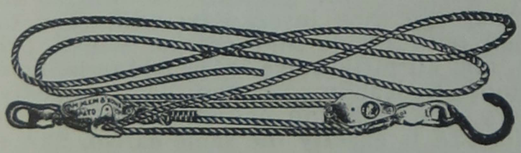


Forged from crucible tool steel; adapted for handling plain or stranded wire from No. 2 to ¾ inch in diameter. Weight per dozen 69 pounds.

Price, No. **1625-20** Haven's Grip........each **$13.10**

KLEIN'S BLOCK TACKLE

NO. 1802-30 SELF LOCKING TYPE

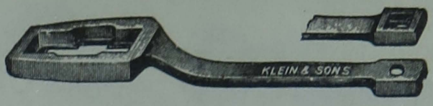


Furnished complete with light galvanized steel shell blocks, fitted with snubbing hook to lock load in any position, and 25 feet ⅜-inch manila rope. To lock the load, it is only necessary to pull the luff rope under the hook; to release, simply pull the rope. Weight each, 2½ pounds.

Price, No. **1802-30** Troublemen's Blocks......**$7.20**

KLEIN WRENCHES

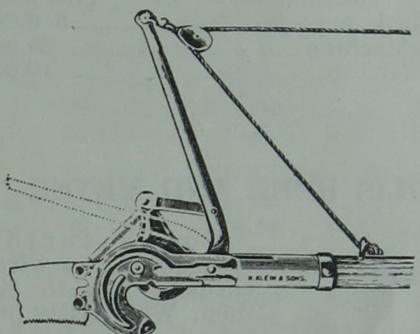
LAG SCREW WRENCH



Forged from selected bar steel; the slot is formed in a cross shape and will fit the heads of machine bolts, nuts or lag screws from ⅜ to ⅝ inch; the small end is arranged for 5/16 inch bolts and lag screws.

Mfrs. No.	Lgth. In.	Wt. Lbs. Per Doz.	Price Each
3109-20	13½	20	**$4.60**

KLEIN TREE TRIMMER


M. KLEIN & SONS.

This tool is entirely different from any other on the market. The entire head comprising hook and socket into which handle fits is sturdily constructed of pressed steel. The knife made of tempered tool steel is round in shape and arranged to rotate slightly with each cut thus providing the entire circumference of the blade for cutting and giving an edge more than three times the length of that on the ordinary blade.

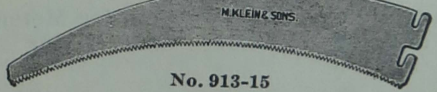
The leverage makes this trimmer cut easily limbs up to 1¼-inch, both green and dry. So arranged that knife may be readily removed for sharpening or renewal. Two thread holes are provided for attaching saw.

Cat. No.	Size Overall Inches	Wt. Lbs. Each	Price Each
3628	12½	3½	**$11.10**

KLEIN TREE TRIMMER SAWS

M.KLEIN&SONS.

No. 913-12



No. 913-15

Teeth set to cut on up and down stroke. Readily attached to tree trimmer. The curved blade saw is particularly efficient and easy cutting even for large limbs.

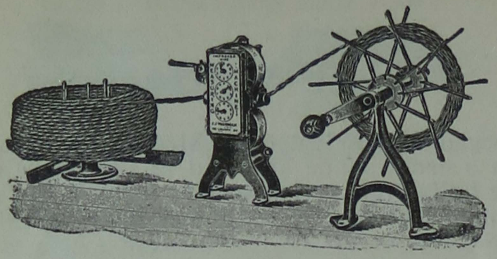
Cat. No.	Size Inches	Wt. Lbs. Dozen	Price Each
913-12	12	4½	**$2.50**
913-15	15	6	**2.70**

NO. 913-G KLEIN SAW HANDLE

When a hand saw is required either of the tree trimmer saws listed above can be set in this handle in a few seconds and held securely with a single thumb screw. Makes an efficient hand saw for cutting heavy branches.

Price, No. **913-G** Saw Handle.........................**$1.50**

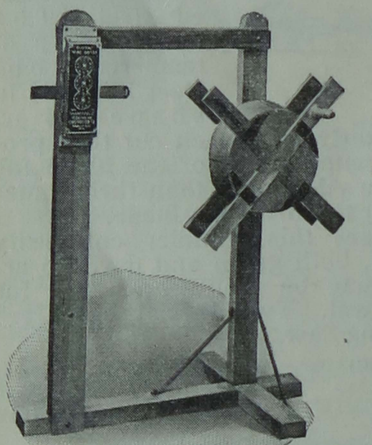
WALDMAN WIRE MEASURING REEL



Measures all wires from No. 0 to 40 inclusive. Can be fastened to counter or side wall and occupies but little space. The winder and reel may be folded when not in use.

Mfrs. No.	Description	Price Each
1	Folding Reel	$ 6.00
2	Measuring Machine	20.00
3	Wire Winder	10.00

MINNEAPOLIS REEL AND METER



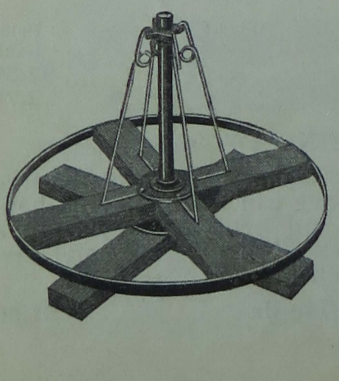
For measuring various sizes of wire, cordage, etc. to ¾-inch. Wire passes between two self-adjusting rollers and will be measured accurately whether large or small size. Reel is provided with removable cross bars and the drum with grooves so the coil can be bound with tie wires and removed in compact form.

Meter can also be furnished without reel for fastening to side of counter, wall or post and on the counter.

Cable Meter on base will measure small sizes of wires as well as large cable, flexible conduit, rope, etc., to 1½ inches.

	Price Each		Price Each
Reel and Meter	$35.00	Counter Meter	$23.50
Meter only	22.50	Cable Meter	35.00

MINNEAPOLIS PAYOUT REEL

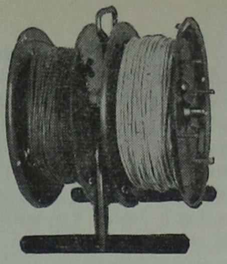


SELF-ADJUSTING

Adjustable to coils from lamp cord to No. 0. Size, 24 inches in diameter, 21 inches high; weight, 20 pounds.

Price, No. P1......$14.00

HYKON DOUBLE UNIT REEL



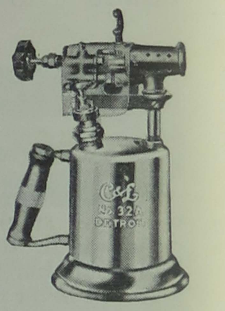
Wire may be reeled off top or bottom from any angle without a kink or snarl. The 15-inch reel takes two coils of No. 8 and smaller wire. The 18-inch reel takes large diameter coils of wire; also heavier wire, loom and light cables. The 21-inch handles extra heavy wire, heavy metallic or non-metallic cables or lead.

There is a Hykon Reel for every type of wiring job.

Size	15-inch	18-Inch	21-Inch
Price, each	$18.00	$21.00	$27.00

CLAYTON & LAMBERT TORCHES

THE MECHANIC'S FAVORITE



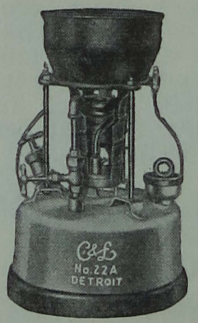
No. 32A performs perfectly either indoors or outdoors under severe weather conditions. The burner produces an intensely hot blue blast 7 inches long which may be regulated for lighter work. A windshield protects the gas generator in cold and windy weather. The gas orifice of the burner jet is automatically cleaned but never enlarged by the control needle cleaner tip. Greatly improved internal vein construction results in usually long burning life.

No. 238 is similar to No. 32A but smaller—fitted with smaller burner.

Cat. No.	Cap. Pints	Shpg. Wt.Lbs.	Price Each	Cat. No.	Cap. Pints	Shpg. Wt.Lbs.	Price Each
32A	2	5	$9.10	238	1	4¼	$7.10

CLAYTON & LAMBERT FIRE POTS

GASOLINE COIL FIRE POTS



No. 22A is easy to start and simple to operate. Burns low gravity gasoline perfectly in any kind of weather. Produces very hot blast flame of large volume; it is efficient, fast and economical for melting solder and babbit in metal pots. A powerful pump produces air pressure quickly. The patented, quick detachable coil unit, when clogged after long use may be replaced in 45 seconds. Simply unscrew the coupling nut, lift through the hinged door of the coil cup then insert new unit. The tank is tinned both inside and outside which prevents rust, and all fittings are interlocking being forced in under hydraulic pressure. Very ruggedly built —very dependable in operation.

No. 12A is exactly the same as No. 22A except fitted with air valve and bulb.

No. 24-A has large 9¼-inch shield and large top plate, otherwise same as No. 22-A.

Cat. No.	Capacity Gallons	Shipping Wt. Lbs.	Price Each
22A	1	13¾	$13.30
12A	1	13½	13.20
24A	1	17¼	15.80

MELTING POTS AND LADLES

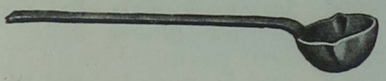
CAST IRON MELTING POT

CLAYTON & LAMBERT
MFG. CO.
DETROIT, MICH. U.S.A.

These melting pots are of the deep pattern and will fit any make of fire pot or furnace. The 6-inch pot is the right size to fit the regular shield of coil fire pots. The 7-inch pot fits the extra large shield used with No. 24A, 75, 76, 77 and 88 fire pot.

Size	5-Inch	6-Inch	7-Inch
Price each	**$1.65**	**$2.00**	**$5.00**

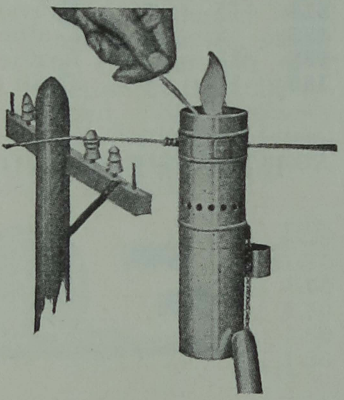
WROUGHT STEEL MELTING LADLES



Size Inch	Wt. Lbs. Each	Price Each	Size Inch	Wt. Lbs. Each	Price Each
2½	½	**$1.00**	4	1¼	**$1.60**
3	¾	**1.20**	5	2½	**2.10**
3½	1	**1.40**	6	3	**2.40**

STAYSALITE LINEMEN'S TORCH

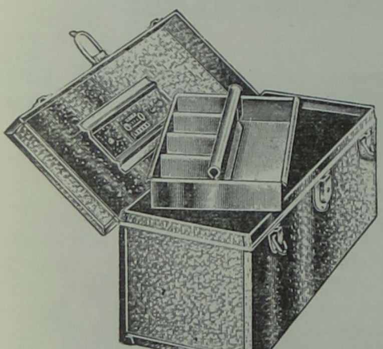
This torch burns alcohol without odor or noise. It is carried in the lineman's belt and does away with the ground man. To suspend the torch on a wire under a joint, place the wire in the slots on the upper edge of the rim, give the body of the torch a half turn and it's on. Also used as a small heater or soldering iron and is provided with a cup for holding soldering paste.



Mfrs. No.	Wt. Lb.	Price Each
3420	**1¼**	**$10.00**

KENNEDY STEEL TOOL KITS

ELECTRICIAN'S KIT

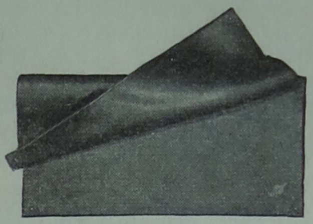


A popular style that will stand years of hard usage. Especially desirable for electricians, linemen, and repairmen. Divided tray extends only part of the length of the Kit, having room in the end for blow torch. Ends of kit are double seamed; it is equipped with a strong multiple change lock, side catches and skid rails.

Cat. No.	Dimens., In. Lgth. Wdth. Hght.	Net Wt. Lbs.	Price Each
319	19 x8x9	10¾	**$5.50**
321	21 x8x9	11¼	**5.75**
324	24½x8x9	13¼	**6.00**

LINEMEN'S RUBBER PROTECTIVE DEVICES

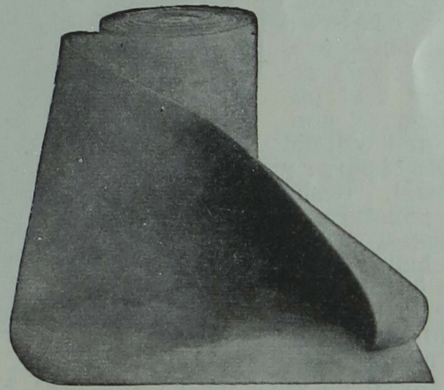
RUBBER PROTECTIVE BLANKETS



Rubber protective blankets are regarded as a universal protector because they are adapted to a great variety of conditions. They will fold, wrap or hang suspended in any position to provide an insulating barrier between electrical workers and hazards adjacent to their working position. Blankets are particularly useful in covering secondary racks, dead ends, cut-outs, pot heads, arresters and similar equipment. They are equally useful in station or underground work.

Plain Style			With Eyelets		
Mfrs. No.	Size Inches	Price Each	Mfrs. No.	Size Inches	Price Each
Duck Inserted—Black					
1	36x36x⅛	**$12.00**	**1–E**	36x36x⅛	**$15.00**
2	27x36x⅛	**10.00**	**2–E**	27x36x⅛	**13.00**
All Rubber—Black					
3	36x36x⅛	**11.00**	**3–E**	36x36x⅛	**14.00**
4	27x36x⅛	**9.00**	**4–E**	27x36x⅛	**12.00**
Pure Gum Center—Maroon					
5	36x36x⅛	**15.00**	**5–E**	36x36x⅛	**19.00**
6	27x36x⅛	**12.00**	**6–E**	27x36x⅛	**16.00**

SWITCHBOARD RUBBER MATTING

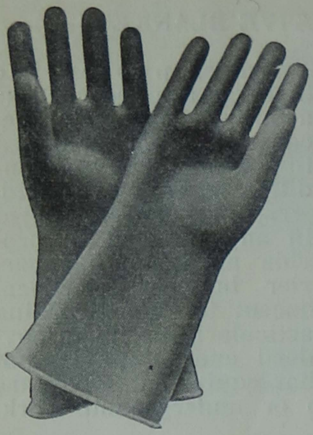


Affords perfect insulation when placed before switchboards or any location where protection from a possible ground is necessary. Solid rubber matting with corrugated surface is recommended for this service. This construction eliminates the possibility of metal particles becoming imbedded in the rubber without being readily detected. The surface also insures a safety tread. Constructed for this particular purpose, of high quality rubber that is free of any metallic ingredients, this switchboard rubber matting should not be confused with ordinary floor runner matting which is similar in appearance but lacks the necessary resistance to voltage.

Available in 2 grades, and in following standard sizes: Widths, 24, 30, 36 and 48 inches; ¼ inch thickness. Lengths up to 75 feet.

	Per Lineal Yard		
Description	24-Inch	30-Inch	36-Inch
50 K.V. Test	**$4.80**	**$6.00**	**$7.20**

LINEMEN'S RUBBER PROTECTIVE DEVICES



STEAM CURED LINEMEN'S GLOVES

Steam cured gloves test far in excess of specifications; are of proper weight and thickness to combine the qualities of flexibility with lasting dependable service.

Made in sizes: 9, 9½, 10, 10½, 11, and 12.

Class B gloves are standard, intended for use with protectors. Class A gloves are thicker and intended for use without protectors.

14-Inch Gloves

Straight Finger Type					Curved Finger Type			
Mfrs. No.	Lgth. In.	Class	Price Per Doz.	Voltage	Mfrs. No.	Lgth. In.	Class	Price Per Doz.
9	14	B	**$78.00**	10,000	**10**	14	B	**$78.00**
9	14	A	**84.00**	10,000	**10**	14	A	**84.00**
9	14	....	**84.00**	15,000	**10**	14	....	**84.00**
9	14	....	**90.00**	20,000	**10**	14	....	**90.00**

18-Inch Gloves

Mfrs. No.	Lgth. In.	Class	Price Per Doz.	Voltage	Mfrs. No.	Lgth. In.	Class	Price Per Doz.
11	18	B	**96.00**	10,000	**12**	18	B	**96.00**
11	18	A	**102.00**	10,000	**12**	18	A	**102.00**
11	18	....	**102.00**	15,000	**12**	18	....	**102.00**
11	18	....	**108.00**	20,000	**12**	18	....	**108.00**

LINEMEN'S GLOVE PROTECTORS

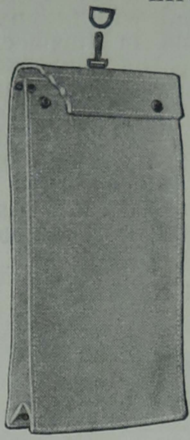
Made of specially tanned grade A buffed horsehide from selected weights. These protector gloves remain soft and pliable under all conditions and will not become slippery when wet. Resist wire puncture to the greatest degree as no belly shank leather is used.

Made in 3 styles, each of which is available with either closed or open backs, and also with long thumb crotches for straight finger rubber gloves or short thumb crotches for curved finger rubber gloves.

For Use With Straight Finger Rubber Gloves			For Use With Curved Finger Rubber Gloves	
Mfrs. No.	Price Per Doz.	Style	Mfrs. No.	Price Per Doz.
		Band Top Style		
154–C	**$36.00**	Closed Back	**1514–C**	**$36.00**
154	**36.00**	Open Back	**1514**	**36.00**
156–C	**36.00**	Closed Back	**1516–C**	**36.00**
156	**36.00**	Open Back	**1516**	**36.00**
		Semi Gauntlet (2¾-Inch) Style		
252–C	**38.00**	Closed Back	**1522–C**	**38.00**
252	**38.00**	Open Back	**1522**	**38.00**
254–C	**38.00**	Closed Back	**1524–C**	**38.00**
254	**38.00**	Open Back	**1524**	**38.00**
		Full Gauntlet (4-Inch) Style		
158–C	**42.00**	Closed Back	**1518–C**	**42.00**
158	**42.00**	Open Back	**1518**	**42.00**
250–C	**42.00**	Closed Back	**1520–C**	**42.00**
250	**42.00**	Open Back	**1520**	**42.00**

LINEMEN'S RUBBER PROTECTIVE DEVICES

LINEMEN'S GLOVE BAGS



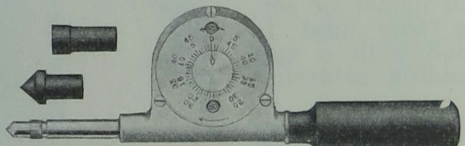
Used to protect linemen's rubber gloves when not in use. They enable the proper storage of gloves on tool truck without danger of their being torn or damaged by contact with other equipment.

Furnished in 3 types and in 2 lengths: 15 inches to hold gloves flat, or 9 inches for an easy fold at the wrist. Bags will lie flat when empty. Are made large enough to accommodate leather gloves also. All styles are equipped with snap hooks and D rings to enable lineman to attach bag to his belt.

Nos. 25 and 35 are made of heavy, tightly woven, waterproof 42-ounce duck with non-raveling edges; white color. No. 15 is made of tan colored jean twill; built in 2 plies with layer of rubber between. Nos. 45 and 55 are made of black leather.

Mfrs. No.	Size, Inches Length	Size, Inches Width	Material	Price Each
255	9	8	Canvas	**$2.10**
355	15	8	Canvas	**2.50**
455	9	8	Leather	**3.00**
555	15	8	Leather	**4.00**
155	15	8	Twill Jeans	**1.40**

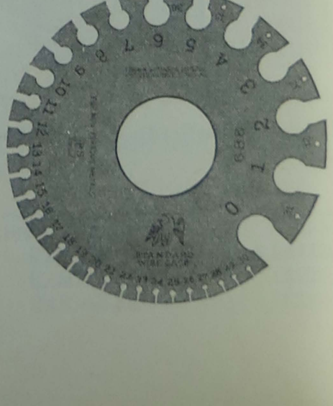
B & S SPEED INDICATOR NO. 748



This speed indicator accurately determines the revolutions of shafting, wheels and spindles, in either direction and measures both high and low speeds equally well.

Mfrs. No.		Price Each
748	Speed Indicator	**$6.75**
748	In Case	**8.25**

B & S AMERICAN STANDARD WIRE GAGE



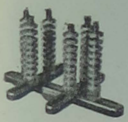
NO. 688

Decimal equivalents (approximate) stamped on the reverse side.

Mfrs. No.	Capacity	Price Each
688	**0 to 36**	**$3.00**
688	**5 to 36**	**2.50**

IDEAL MOTOR MAINTENANCE PRODUCTS

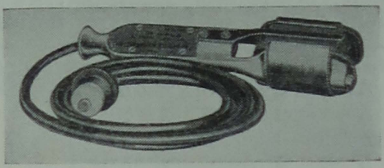
IDEAL COIL WINDER



Makes many types of coils, field, mush, armature, transformer, motor coils and loops with diamond, round, square or rectangular cores. Quickly reset from one size to another.

Price, Complete..................list **$71.85**

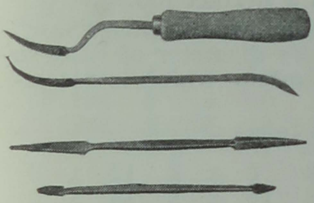
IDEAL GROWLERS



The Ideal Growler is an electrical device specially adapted for locating shorts, grounds, and opens in armatures, stators and coils. Made in many types for use on armatures and stators of the smallest motors and generators to the largest.

Prices and specifications on application.

IDEAL COMMUTATOR SLOTTING FILES



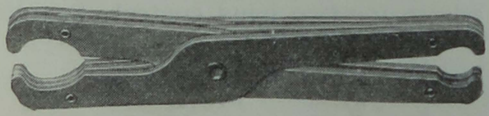
Especially adapted for undercutting mica, leaving a V-shaped slot. Easy to operate, assuring a better job at a fraction of the time required with ordinary tools. Made in 5 types: single and double-end. Single-end files have wooden handles.

Description	Price Each
Single-end File*	**$1.50**
7-inch Double-end File*	**1.50**
8-inch Double-end File*	**1.50**
Straight 3-edge Cutting File†	**1.50**
Knife Edge File†	**1.50**

*Draw cut or double cut type.

†Double cut only.

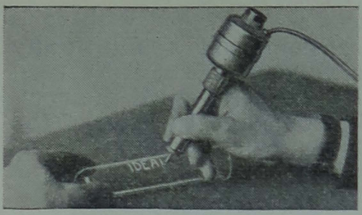
IDEAL FUSE PULLERS



Designed to eliminate the danger of pulling and replacing cartridge fuses by hand and the bending of fuse clips through improper removal. In addition to being used for pulling fuses, they are adapted for adjusting loose cutout clips, handling laboratory test tubes, live electrical parts, etc.

Size	Description	List Each
Midget	For Small Fuses, ¼ to ½-Inch in Diameter	**$0.45**
Pocket	0 to 200-Amp., 250-Volt, and 1 to 100-Amp., 600-Volt	**1.25**
Giant	100 to 600-Amp., 250-Volt and 60 to 400-Amp., 600-Volt	**3.75**
Jumbo	200 to 800-Amp., 250-Volt, and 200 to 600-Amp., 600-Volt	**11.25**

IDEAL ELECTRIC MARKER



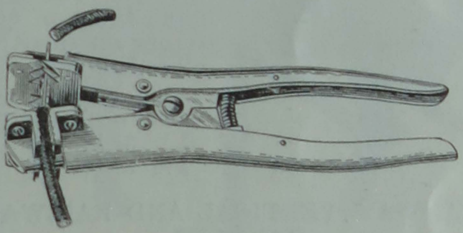
Marks everything — the Ideal Electric Marker writes on all materials whether conductors or non-conductors. It will permanently mark machine parts, tools, dies, nameplates; also glass, porcelain, ceramics, hard rubber, bakelite, plastics, etc. The tool is compact, sturdy, light in weight and dependable.

Plugs into any A.C. light socket; requires no dials or transformers. (For use on alternating current only). Length, 6¾ inches.

Description	List Each
Complete Marker, 110-120 V., or 200-230-V., 60 Cycle, with special hardened point	**$16.25**
Complete Marker, 110-120 V., or 200-230 V., 60 Cycle, with diamond point	**18.50**
Special Hardened Points	**5.00**
Diamond Points	**7.25**

Special voltages and frequencies: 100-120 V., 25 cycle, A.C.; 210-230 V., 25 cycles, A.C.; 210-230 V., 50 cycles, A.C.—add 10 per cent.

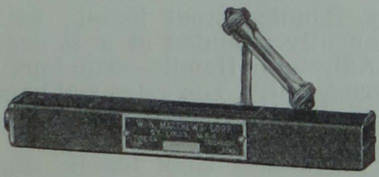
IDEAL STANDARD E-Z WIRE STRIPPERS



Always ready to use. One squeeze of the handle clamps the wire, cuts insulation and strips. Does not scar or cut the wire. Strips solid or stranded wire.

Cat. No.	Description	List Each
0	Strips No. 20 to No. 30 gauge wire	**$5.00**
1	Strips No. 12 to No. 18 gauge wire	**5.00**
2	Strips No. 10 to No. 16 gauge wire	**5.00**
3	Strips No. 8 and No. 10 gauge wire	**5.00**

MATTHEWS TELEHEIGHT



The Type C-W Matthews Teleheight is a little instrument by means of which anyone can quickly find the height of any object within its range of 75 feet. It is used by public service companies for measuring the height of trees, buildings, etc., over which wires and cables are to be strung. Any intelligent man can use it and obtain accurate results. It does not require any technical knowledge. Very desirable for pole using companies for quickly figuring wire clearances.

Type C-W Teleheight..................net each **$11.00**

Price includes Leather Carrying Case.

IDEAL COMMUTATOR RESURFACERS

HAND TYPE RESURFACERS

Hand Type Resurfacers are equipped with various style handles to meet conditions found in any type of commutator or slip ring. They are used by simply holding the Resurfacer against the commutator and moving it from side to side as the motor turns over, under its own power.

PENCIL TYPE

Pencil Type (No Handle)

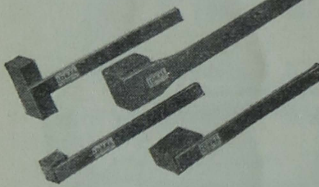
Used for fans or signal motors, for auto generators, locomotive headlight motors and other fractional H.P. motors. Standard size, 6x⅝x⅜ inches.

FAN—SMALL MOTOR TYPE

Fan, Auto or Small Motor Type

This Ideal Resurfacer has a medium-grade stone on one end and a finish-grade stone on the other end of the handle. For use on small fractional H.P. motors. Standard size, ¾x½x⅜ inches.

STRAIGHT HANDLE TYPES



This type is used primarily on inaccessible types of commutators on small or enclosed motors.

Dimensions, Inches					
Lgth.		Wdth.	Lgth.		Wdth.
1	x	1	2	x	1
1½	x	1½	3	x	1

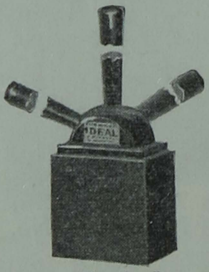
TRAMWAY, VERTICAL AND RAILWAY HANDLES

For Medium Size Motors and Small Generators

Dimens, Inches	
L. W.	L. W.
2x1½	3x3
2x2	4x1½
3x1½	4x2
3x2	4x3

Specify thickness and grade, also type of handle desired.

Tramway Handle



Vertical Adj. Handle

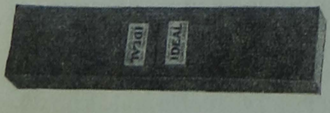
Railway Handle

Tramway Handle—Stout handle with a good grip, permanently mounted at a 45-degree angle.

Vertical Adjustable Handle—The knob handle is fastened permanently. The extra rod handle makes this type universal to meet practically all conditions.

Railway Handle—A stout handle with a good grip, permanently mounted in a vertical position.

POCKET TYPE

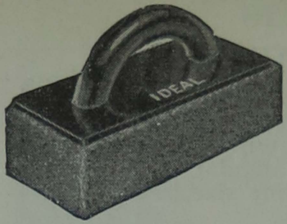


2-in-1 Tool—Handy, Pocket Type.

Made up in any combination of the five grades, two grades being cemented together. Standard sizes, 6x2x1; 8x2x1 inches.

Specifications and prices on request.

IDEAL COMMUTATOR RESURFACERS



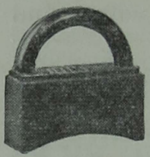
"U" Handle

"Saw" Handle

These types are for use on large motors, small rotary converters, motor-generator sets, telephone generators, etc. Equipped with either the convenient "Saw" or "U" type handles.

Dimensions, Inches						Dimensions, Inches					
Lgth.		Wdth.	Lgth.		Wdth.	Lgth.		Wdth.	Lgth.		Wdth.
4	x	4	5	x	5	6	x	5	8	x	2
5	x	2	6	x	2	6	x	6	8	x	3
5	x	3	6	x	3	7	x	3	8	x	4
5	x	4	6	x	4	7	x	4	9	x	4

SLIP RING TYPES



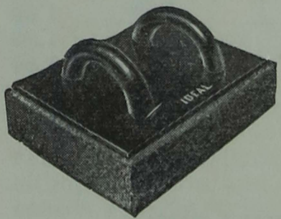
Slip Ring Type

These types are made to meet conditions of all rings. When space permits, use a resurfacer about 1-inch wider than the ring, thereby bridging over the entire width. The resurfacer should be three times as long as the flat spots as bridging over them assures a perfect job.

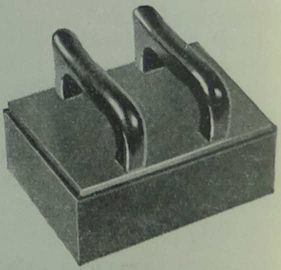
Sizes listed can be supplied with either "Saw" or "U" type handles. Specify diameter of Ring so stone may be arced to fit contour which is recommended for ring grinding.

Dimensions, Inches														
L.		W.	L.		W.	L.		W.	L.		W.	L.		W.
4	x	1	5	x	2	6	x	3	8	x	3	12	x	3
4	x	1½	5	x	3	7	x	2	10	x	2	14	x	2
5	x	2	6	x	1½	7	x	3	10	x	3	14	x	3
5	x	1½	6	x	2	8	x	2	12	x	2	....		..

DOUBLE "U" AND DOUBLE SAW HANDLES



Double "U" Handle

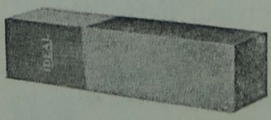


Double Saw Handle

All sizes listed are equipped with two handles, which allows for two hand control. Supplied in either the convenient "Saw" or "Flat-Iron" type handles as selected.

Dimensions, Inches														
L.		W.	L.		W.	L.		W.	L.		W.	L.		W.
7	x	5	9	x	5	10	x	6	12	x	6	14	x	8
8	x	5	9	x	6	10	x	8	12	x	8	16	x	6
8	x	6	10	x	4	12	x	4	14	x	4	16	x	8
8	x	8	10	x	5	12	x	5	14	x	6	16	x	10

BLOCK HANDLE OR TOOL TYPE



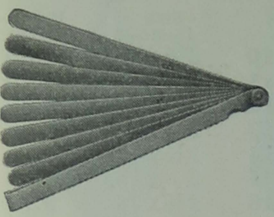
For use with precision grinders. Equipped with wood block handles. Can be made in any length or any size cutting face.

Dimens., In.		Dimens., In.		Dimens., In.	
Face	Length	Face	Length	Face	Length
1 x1	5 or 6	2 x1	5 or 8	3x2	5 or 8
1 x1½	5	2½x1½	5 or 8	3x3	5 or 8
1½x1½	5 or 8	2 x2	5 or 8	......	....

Specifications and prices on request.

ARMATURE AIR GAP GAUGES

Very useful for plant maintenance work in checking the correct air gap between stator and rotor. By periodically checking these air gaps, worn bearings which allow the rotor to drop in the frame are detected before the wear becomes excessive. Steps can then be immediately taken to overcome the trouble and the striking of the rotor against the stator or pole pieces can be avoided. Maintenance of uniform air gaps also void electrical disturbances in the machine.

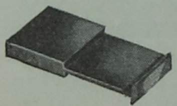


These gauges are made of thin leaves of specially tempered steel. Each leaf is plainly marked for thickness. Each set has a substantial steel case into which the gauges fold when not in use.

Available in two types, 8 inches long or 16 inches long, in six sizes of various thicknesses as shown below:

Size In.	Cat. No.	Thickness								Price
8	**81**	2	3	4	5	6	8	10	15	**$1.88**
	82	2	3	4	8	16	24	32	48	
	83	2	3	5	10	15	25	40	60	
16	**164**	6	8	10	12	15	25	....	....	**3.75**
	165	5	8	10	15	25	40	....	....	
	166	5	10	15	25	40	60	....	....	

COIL TAMPING TOOLS



Ideal Coil Tamping Tools are used for tamping wires in slots. Made of heat-treated steel—1/16-inch thick shank permitting easy use in the narrowest slot. They are furnished in three sizes:

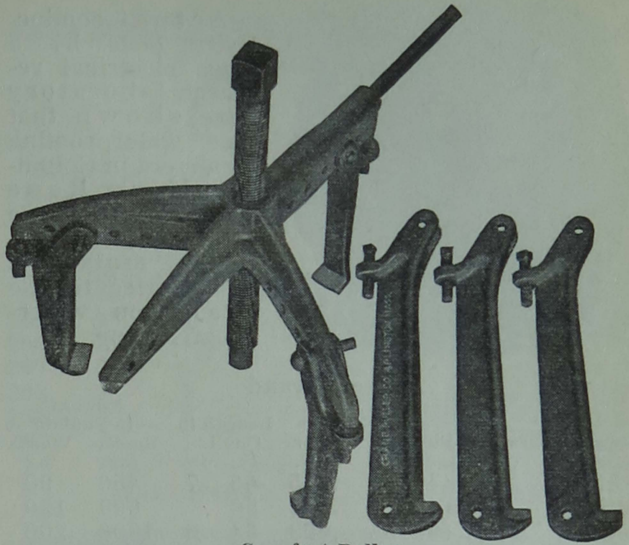
3/16 x 1 inch	**$1.00**
5/16 x 1¼ inches	**1.10**
⅜ x 1½ inches	**1.20**

WEDGE DRIVERS

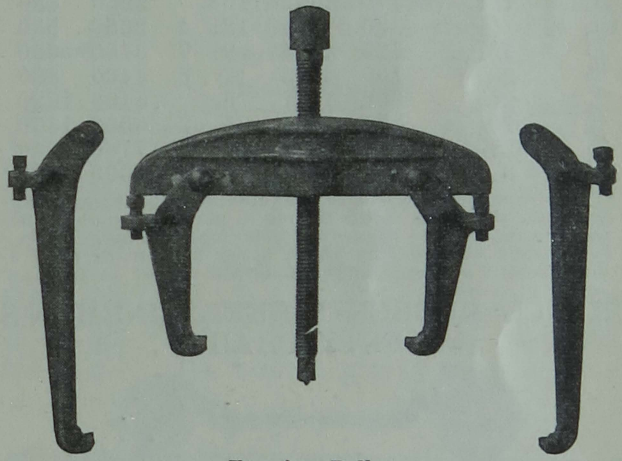
Prevent wedges from breaking or bulging while being driven into place. Made of a brass shell and steel driver. When ordering state width and thickness of wedges or specify size as listed below:

Size, Inches	Price	Size, Inches	Price
1/32 x ⅜	**$3.30**	3/32 x ⅜	**$3.50**
1/32 x ⅝	**3.30**	3/32 x ⅝	**3.50**
1/16 x ⅜	**3.40**	⅛ x ⅝	**3.60**
1/16 x ⅝	**3.40**	⅛ x ⅞	**3.60**

MARTINDALE WHEEL AND GEAR PULLERS



Crowfoot Puller



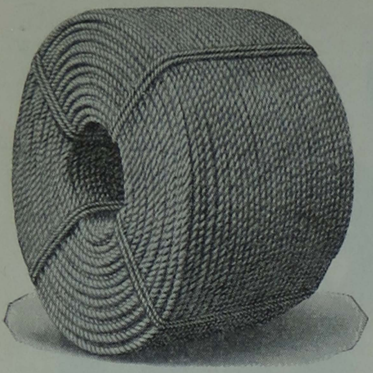
Two-Arm Puller

The arms and two-arm beams are drop-forged from .40 carbon steel. The Crowfoot beams cannot be forged—they are certified malleable iron castings. Crowfoot style can be used as either a two-arm or three-arm puller. Used as a three-arm puller it distributes the strain more uniformly over the work; arms are locked on the work by tightening the set screws against the beam.

No.	Description	Size Arms Inches	Shpg. Wt. Lbs.	Price Each
0	Two-Arm Puller	3 and 6	5	**$10.80**
0	Crowfoot Puller	3 and 6	8	**16.20**
	Accommodate diameters up to 6 inches; maximum reach 6 inches.			
2	Two-Arm Puller	6 and 10	24	**25.20**
2	Crowfoot Puller	6 and 10	37	**36.00**
	Accommodate diameters up to 12 inches; maximum reach 17 inches.			
3	Two-Arm Puller	7 and 11	39	**36.00**
3	Crowfoot Puller	7 and 11	65	**50.40**
	Accommodate diameters up to 18 inches; maximum reach 19 inches.			
3X	Two-Arm Puller	8 and 13	65	**59.40**
3X	Three-Arm Puller	8 and 13	108	**90.00**
	Accommodate diameters up to 24 inches; maximum reach 22 inches.			

COLUMBIAN MANILA ROPE

LINEMEN'S SPECIAL MANILA ROPE



Actual conductivity tests by a large electrical research laboratory have shown that the waterproofing treatment in Columbian Manila Rope makes it, by virtue of its slow absorption of moisture, much safer to use than non-waterproofed rope.

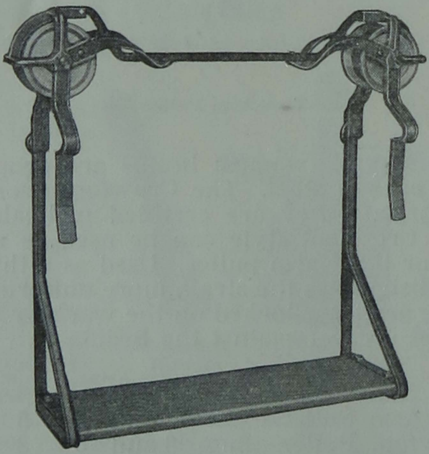
Three-Strand

Size Inches Dia.	Size Inches Cir.	Approx. Gross Weight, Pounds Full Coil 1200 Feet	Approx. Gross Weight, Pounds Per Ft.	Length in One Lb. Ft.	Length in One Lb. In.	Strength in Pounds Breaking	Strength in Pounds Working
6thF 3/16	⅝	*(40)18	.015	66	7	450	90
6th ¼	¾	(40)24	.020	50		600	120
9th 5/16	1	(55)35	.029	34	6	1000	200
12th ⅜	1⅛	(65)49	.041	24	5	1350	230
15th 7/16	1¼	(80)63	.0525	19		1750	330
18th 15/32	1⅜	(80)75	.0625	16		2250	450
21th ½	1½	90	.0750	13	4	2650	530
9/16	1¾	125	.104	9	7	3450	690
⅝	2	160	.133	7	6	4400	880
¾	2¼	200	.167	6		5400	1080
13/16	2½	234	.195	5	2	6500	1300
⅞	2¾	270	.225	4	5	7700	1540
1	3	324	.270	3	9	9000	1800

*The six smallest sizes are manufactured to weights approximately the same as the figures in parentheses above because they make more convenient coils for handling.

Four-strand rope weighs about 5 per cent more than 3-strand. Tensile strength approximately the same as 3-strand.

CHANCE RUBBER WHEEL LINEMAN'S SAFETY CHAIR



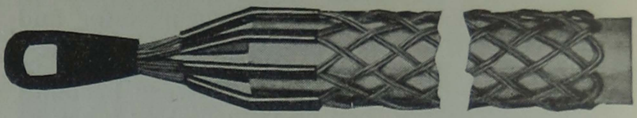
Cat. No.	Description	Wt. Lbs. Packed	Price Each
20	Rigid Chair	29	$17.60
27	Flexible Chair	27	17.00
28	Flexible Chair with Belt Seat Hanger	27	19.25

CHANCE CAPSTAN PULLEY BLOCKS

Cat. No.	Capacity Pounds	Size Rope Inches	Wt. Lbs. Each	Price Each Without Rope	Price Each With Rope
2	2000	½	15	....	$25.30
2A	2000	½	13	$23.70	....
4	4000	⅝	25¼	....	37.40
4A	4000	⅝	20½	34.70	....
22	3000	½	19¼	....	34.70
22A	3000	½	16¾	31.90	....
44	5000	⅝	31¼	....	51.70
44A	5000	⅝	25¾	49.50	....

CABLE GRIPS

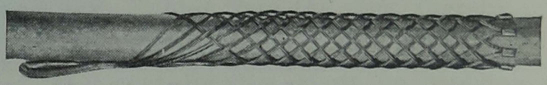
KELLEMS PATENTED CABLE GRIPS



Designed for attaching pulling line to end of cable. Has Kellems patented protection over the shoulder, making leather collar unnecessary, also endless weave which enables it to fit smoothly over the cable, and eliminates ragged, twisted ends.

Cat. No.	Size Inches	Price Each	Cat. No.	Size Inches	Price Each
E101	1 x24	$4.60	E110	2½x36	$7.60
E102	1½x24	5.10	E111	3 x36	8.10
E103	2 x24	5.60	E112	3½x36	8.60
E104	2½x24	6.10	E113	1 x48	7.60
E105	3 x24	6.60	E114	1½x48	8.10
E106	3½x24	7.10	E115	2 x48	8.60
E107	1 x36	6.10	E116	2½x48	9.10
E108	1½x36	6.60	E117	3 x48	9.60
E109	2 x36	7.10	E118	3½x48	10.10

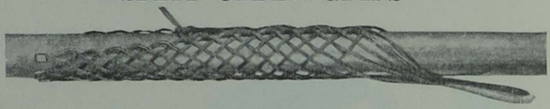
*CLOSED CABLE GRIPS



The closed cable grip is designed for pulling slack or recovering old cable.

Cat. No.	Size Inches	Price Each	Cat. No.	Size Inches	Price Each
1	1 x18	$3.75	7	1 x24	$4.75
2	1½x18	4.25	8	1½x24	5.25
3	2 x18	4.75	9	2 x24	5.75
4	2½x18	5.25	10	2½x24	6.25
5	3 x18	5.75	11	3 x24	6.75
6	3½x18	6.25	12	3½x24	7.25

*SPLIT CABLE GRIPS



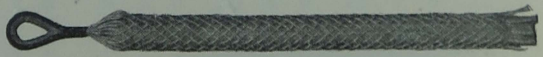
Designed for use on a working cable. It can be attached to any point on a cable without cutting it.

Cat. No.	Size Inches	Price Each	Cat. No.	Size Inches	Price Each
25	1 x18	$4.00	31	1 x24	$5.00
26	1½x18	4.60	32	1½x24	5.60
27	2 x18	5.20	33	2 x24	6.20
28	2½x18	5.80	34	2½x24	6.80
29	3 x18	6.40	35	3 x24	7.40
30	3½x18	7.00	36	3½x24	8.00

The new design, single eye closed and split cable grips is illustrated. This design is far superior to the old type double eye as the eye is placed flat against the cable thereby overcoming any tendency to mar the lead sheath.

Double eye grips are still supplied in the closed and split types and the price is the same as for the new type single eye. If double eye grips are desired so state in the order.

UNIVERSAL SINGLE EYE CABLE GRIPS



Old type pulling grip, made either single or double weave. Old type are not endless protected.

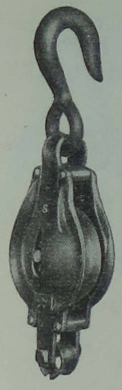
Cat. No.	Size Inches	Price Each	Cat. No.	Size Inches	Price Each
201	1 x24	$3.00	210	2½x36	$4.75
202	1½x24	3.25	211	3 x36	5.00
203	2 x24	3.50	212	3½x36	5.25
204	2½x24	3.75	213	1 x48	5.00
205	3 x24	4.00	214	1½x48	5.25
206	3½x24	4.25	215	2 x48	5.50
207	1 x36	4.00	216	2½x48	5.75
208	1½x36	4.25	217	3 x48	6.00
209	2 x36	4.50	218	3½x48	6.25

*Prices listed for closed, split, and Universal single eye cable grips are for double weave. If single weave is desired, deduct $0.50 from the prices listed.

B & L STAR METAL BLOCKS

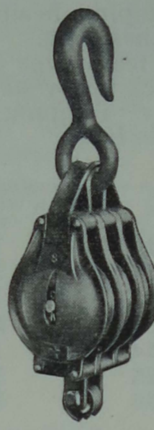
FOR MANILA ROPE

Malleable Iron Shells—Chrome Manganese Steel Sheeve Pins—Drop Forged Loose Side Hooks



No. 2325-A
Single

No. 2326-A
Double



No. 2327-A
Triple

These blocks have been adopted as standard equipment by the largest Public Utility companies.

The Malleable Iron Shells have edges nicely rounded to prevent chafing of the rope, and constructed to prevent rope from jamming between the shell and the sheave. The sides are recessed covering the ends of the center (sheave) pin.

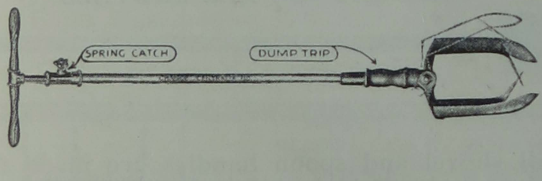
All straps extend to the bottom of the shell, furnishing proper support. The Chrome Manganese Steel Sheave Pins greatly increase strength and durability.

Graphite-Bronze Bushed

Self-Lubricating

Dimensions, Inches			ALL JAPANNED			ALL GALVANIZED		
			Each			Each		
Size Sheaves	Diam. Rope	Lgth. Shell	S'gle	D'ble	Triple	S'gle	D'ble	Triple
1¾x ½x⅜	⅜	3	$4.00	$6.60	$9.20	$4.20	$6.95	$9.70
2¼x ⅝x⅜	½	4	4.30	7.00	9.70	4.65	7.55	10.50
3 x ¾x⅜	⅝	5	5.10	8.30	11.50	5.70	9.20	12.70
3½x1 x½	¾	6	6.00	10.00	14.00	6.80	11.30	16.00
4¼x1 x½	⅞	7	8.00	12.50	17.00	9.20	14.30	19.50
4¾x1⅛x⅝	1	8	9.00	15.50	22.00	10.50	18.00	25.50
5½x1⅜x⅝	1⅛	9	13.00	20.00	27.00	15.50	24.00	32.50
6¼x1½x¾	1¼	10	16.00	26.00	36.00	19.00	31.00	43.00
8 x1⅝x¾	1½	12	23.00	39.00	55.00	28.00	47.00	65.00

CHANCE HEAVY TELEGRAPH AUGER

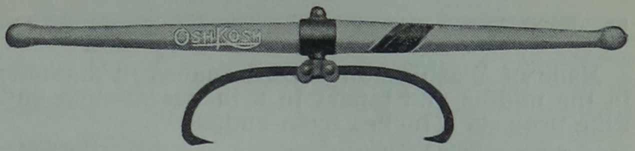


Fitted with Chance telescoping handle and easy dump trip. Use reamer for increasing hole 4 inches.

Cat. No.	Size Inches	Wt. Lbs. Each	Price Each
610	5⅜ to 7¾	26	**$17.00**
812	8 to 12¾	28	**17.00**

OSHKOSH TOOLS

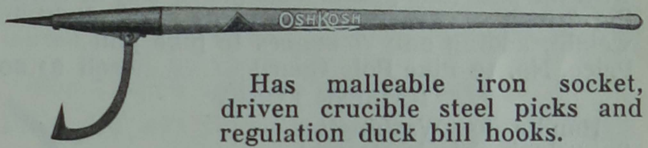
REGULAR PATTERN CARRYING HOOK



Made for the exclusive purpose of carrying poles. The handles are made of selected air seasoned rock maple. Malleable clasp and swivel.

Carrying Hooks					Extra Handles		
Cat. No.	Diam. In.	Length Ft.	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
295	2½	4	7	**$3.86**	**593**	3	**$1.29**
296	2½	4½	8	**3.98**	**594**	4	**1.39**
297	2½	5	8	**4.09**	**595**	4	**1.60**
298	3	5	12	**6.70**	**963**	5	**2.96**
299	3	6	13	**6.93**	**964**	6	**3.58**
300	3	7	14	**7.39**	**965**	7	**4.51**

MALLEABLE SOCKET PEAVIES

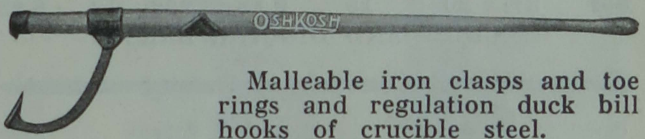


Has malleable iron socket, driven crucible steel picks and regulation duck bill hooks.

Maple Handles

Peavies					Extra Handles		
Cat. No.	Diam. In.	Length Ft.	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
121	2¼	4	7	**$4.20**	**541**	3	**$1.32**
122	2¼	4½	7	**4.28**	**542**	3	**1.39**
124	2½	4	9	**4.34**	**544**	3	**1.39**
125	2½	4½	9	**4.56**	**545**	4	**1.49**
Hickory Handles							
134	2¼	4	8	**4.78**	**572**	3	**1.49**
135	2¼	4½	8	**5.14**	**573**	3	**1.60**
137	2½	4	9	**4.93**	**575**	4	**1.64**
138	2½	4½	10	**5.48**	**576**	4	**1.83**

CANT HOOKS

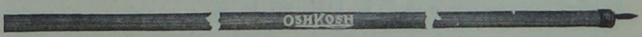


Malleable iron clasps and toe rings and regulation duck bill hooks of crucible steel.

Maple Handles

Cant Hooks					Extra Handles		
Cat. No.	Diam. In.	Length Ft.	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
188A	2¼	4	7	**$3.32**	**541**	3	**$1.32**
189A	2¼	4½	8	**3.52**	**542**	3	**1.39**
188	2½	4	8	**3.40**	**544**	3	**1.39**
189	2½	4½	8	**3.58**	**545**	4	**1.49**
Hickory Handles							
199A	2¼	4	7	**3.82**	**572**	3	**1.49**
200A	2¼	4½	8	**3.93**	**573**	3	**1.66**
199	2½	4	8	**4.07**	**575**	4	**1.64**
200	2½	4½	9	**4.34**	**576**	4	**1.83**

STANDARD LIGHT PIKE POLES

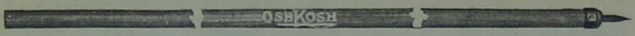


Washington fir handles 2 inches in diameter, not tapered. Pike projects 4 inches.

Pike Poles					Extra Handles		
Cat. No.	Diam. In.	Length Ft.	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
805	2	10	6	**$3.32**	**970**	6	**$2.60**
806	2	12	8	**3.62**	**971**	7	**2.82**
807	2	14	10	**4.09**	**972**	9	**3.22**
808	2	16	11	**5.25**	**973**	11	**4.39**

OSHKOSH TOOLS

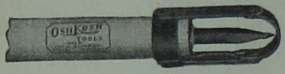
A. T. AND T. PATTERN PIKE POLES

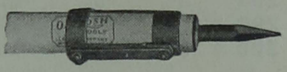


Made of Washington fir, 2½ inches in diameter in the middle and tapers to 2 inches at each end. Pike projects 4 inches from end.

Pike Poles					Extra Handles		
Cat. No.	Diam. In.	Length Ft.	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
817	2½	10	12	$4.21	......	....	....
818	2½	12	13	4.50	982	12	$4.45
819	2½	14	14	5.59	983	13	4.95
820	2½	16	15	6.46	984	14	5.44
821	2½	18	18	7.54	985	17	6.27
822	2½	20	20	8.40	986	19	6.93

PIKE POLE GUARD

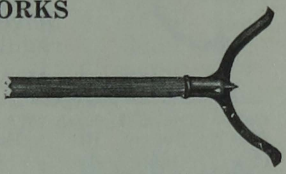




Oshkosh pike pole pikes can be safely guarded with the pike pole guard. This guard will fit either the 2-inch or 2½-inch pike poles. It is light in weight, adding only 7 ounces to pike pole.

Price, No. 10 Pike Pole Guard................each **$1.60**

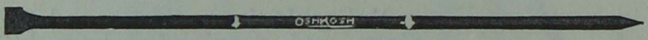
RAISING FORKS



Handle is Washington fir, 2 inch pole is straight handle and 2½ inch tapers to 2 inches at each end. Fork is one piece malleable iron.

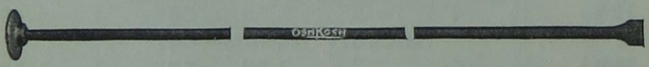
Raising Forks					Extra Handles		
Cat. No.	Diam. In.	Length Ft.	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
832	2	10	10	$4.87	970	6	$2.60
833	2	12	12	5.41	971	7	2.82
834	2	14	13	6.19	972	9	3.22
795	2	16	15	7.20	973	11	4.39
796	2½	12	13	7.27	982	12	4.45
797	2½	14	14	7.90	983	13	4.95
835	2½	16	15	8.53	984	14	5.44
836	2½	18	16	9.00	985	16	6.27
837	2½	20	18	9.38	986	19	6.93

CROW AND DIGGING BARS



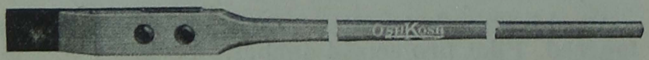
Cat. No.	Size, In.	Length Feet	Weight, Lbs.	Price Each
1061	1 Oct.	7	20	$5.56
1062	1 Oct.	8	23	5.89
1064	1⅛ Oct.	7	26	6.10
1065	1⅛ Oct.	8	28	6.94
1066	1⅛ Oct.	9	31	7.97

TAMPING AND DIGGING BARS



Cat. No.	Size, In.	Length Feet	Weight, Lbs.	Price Each
1071	1 Oct.	7	20	$5.78
1072	1 Oct.	8	23	6.17
1074	1⅛ Oct.	7	26	6.46
1075	1⅛ Oct.	8	30	7.48

LOY OR SLICK

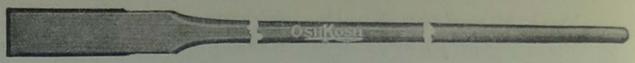


The handle is of 2 inch select maple and the blade is of tool steel 4 inches by ½ inch, fitted onto the handle and held by two large rivets.

Loy or Slick				Extra Handles		
Cat. No.	Length Feet	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
853	8	18	$8.74	1001	8	$5.69

OSHKOSH TOOLS

TAMPING BARS



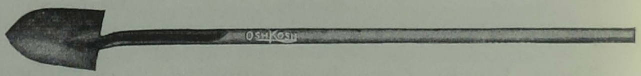
Light type is made of rock maple with ¼-inch thick steel shoe securely riveted to the head. Tamping head measures 1¾ inches wide by 4 inches long.

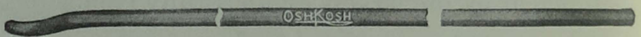
Heavy type is made of rock maple with ½-inch thick heavy steel shoe. Handle is 1⅝ inches diameter. Tamping face is 1¼ inches wide by 3½ inches long.

Light Tamping Bars

Tamping Bars				Extra Handles		
Cat. No.	Length Feet	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
854	7	13	$4.39	1002	7	$3.46
855	8	14	5.01	1003	8	4.25
856	9	16	5.67	1003A	9	4.84
Heavy Tamping Bars						
1054	7	13	4.79	2002	5	2.83
1055	8	15	5.34	2003	5	3.55
1056	9	17	6.10	2003A	6	4.45

CROOKED HANDLE SHOVELS

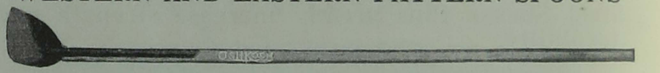




With Maple Handles

Crooked Handle Shovels					Extra Handles		
Cat. No.	Length Feet	Strap In.	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
874	7	22	8	$3.70	1000B	4	$2.90
875	8	22	9	4.23	1000	5	3.47

WESTERN AND EASTERN PATTERN SPOONS



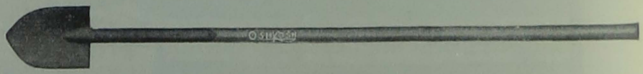
All spoon and shovel handles are 1 3/16 inch diameter and are of perfect, straight grained stock.

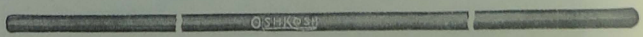
Length of strap, 22 inches.

With Maple Handles

Cat. No.		Handle Feet	Lbs. Each	Price Each	Etxra Handles		
Western	Eastern				Cat. No.	Wt. Lbs. Each	Price Each
859	859E	7	10	$3.70	993	4	$1.70
860	860E	8	10	4.23	994	5	2.16
861	861E	9	11	4.65	995	6	2.62
862	862E	10	12	5.12	996	7	3.15
With Ash or Hickory Handles							
1023	1023E	7	10	3.83	1005	6	1.95
1024	1024E	8	10	4.30	1006	6	2.66
1025	1025E	9	11	4.80	1007	7	3.64
1026	1026E	10	12	5.34	1008	7	4.68
1027	1027E	12	14	6.38	1009	8	5.91

STRAIGHT HANDLE SHOVELS





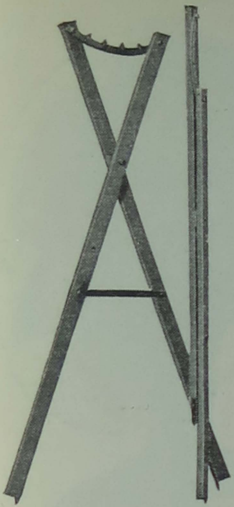
All shovel and spoon handles are made from straight grained stock, 1 3/16 inches in diameter.

With Maple Handles

Straight Handle Shovels					Extra Handles		
Cat. No.	Length Feet	Strap In.	Wt. Lbs. Each	Price Each	Cat. No.	Wt. Lbs. Each	Price Each
867	7	22	8	$3.70	993	4	$1.70
868	8	22	9	4.23	994	5	2.16
869	9	22	10	4.65	995	6	2.62
870	10	22	11	5.12	996	7	3.15

OSHKOSH POLE SUPPORTS

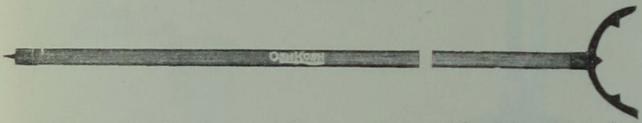
WOODEN JENNY



Made of clear select Washington Fir. Light in weight and easily collapsible for carrying in trucks. Pikes are placed on the bottom of each leg to prevent slipping on hard surfaces.

Cat. No.	Height, Feet	Weight Lbs.	Price Each
842	6	25	**$12.83**
843	7	30	**14.57**
844	8	35	**15.75**

FIR DEADMAN



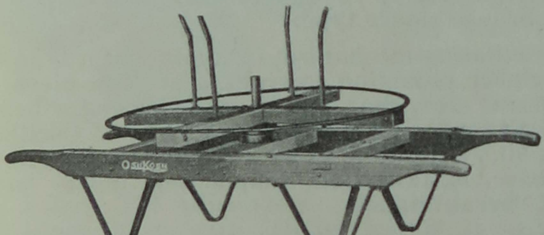
Made of clear straight grained Washington fir. Measures 3 x 3 inches square, 8½ feet over all, with hand-forged steel forks with 3 prongs. Pole banded at each end to prevent splitting.

Cat. No.	Length Pole, Feet	Wt. Lbs. Each	Price Each
740	8	40	**$14.00**

OSHKOSH REELS

HEAVY WESTERN UNION TYPE BARROW

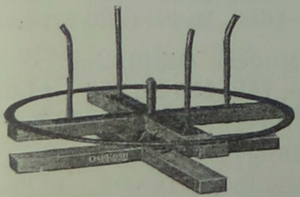
For Electric Light Work



Strongly made of rock elm, braced and reinforced with steel. A wide bearing, together with a long pivot and sleeve, allow the reel to turn easily. Reel pins adjustable for 12, 18, 21 and 24 inch coils.

Cat. No.		Weight Pounds	Price Each
900	Heavy W. U. Type Barrow....	80	**$27.09**
901	Extra Guard Pins, Set of 4..	1½	**3.00**

PLAIN PAYOUT REEL

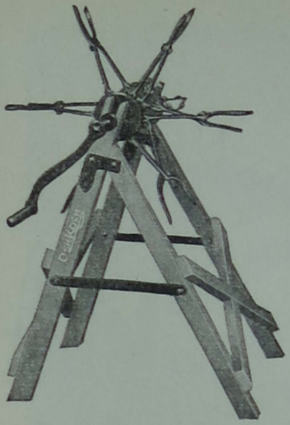


Made of rock elm, well braced and reinforced with sheet steel throughout. It is especially suitable for gang mountings on a wagon, when paying out several wires at one time. Reel pins adjustable for 12, 18, 21 and 24-inch coils. Weight, 40 pounds.

Price, No. **902** Payout Reel....................each **$16.32**

OSHKOSH REELS

FOLDING TAKE-UP



A handy tool to have on a truck. When taking down good wire it will coil it neatly in standard sized coils entirely uninjured. In taking down or picking up wire to be sold as scrap it is easier to handle and takes up less space when in coils, and it is just as quick to coil it with this reel as to throw it loosely on the truck.

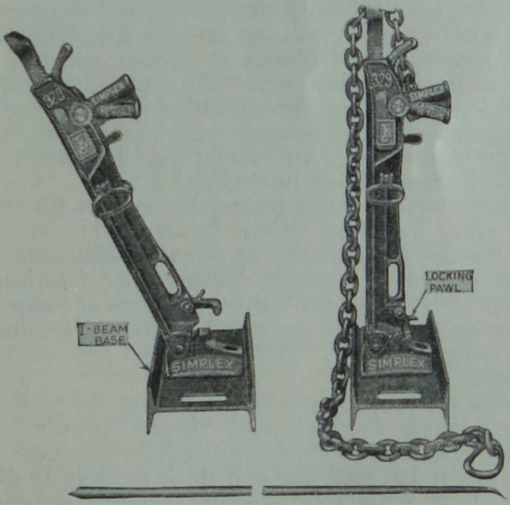
The two parts, the reel itself, and the wooden stand, both collapse so that when not in use very little room is occupied. The reel part is made of malleable iron and steel. The stand is made of hardwood, mortised and framed, and reinforced with steel. When reel is filled and coil is to be taken off, the reel is collapsed in a second and ready to put on the truck, or to be set up again for use.

For 21-inch coil; weight 42 pounds.

Price, No. **897** Take-Up Reel................each **$25.26**

SIMPLEX JACKS

Nos. 318 AND 329 SIMPLEX POLE-PULLING AND STRAIGHTENING JACKS



The No. 329 Simplex Pole Pulling Jack is single acting, automatic raising and lowering. It cannot be tripped.

Designed especially for pulling and straightening telephone, telegraph, electric light and trolley poles regardless of size, depth in ground, and without digging around them. One or two men can pull or straighten poles, pull butts, or move load poles without interrupting service.

Endorsed, adopted and standardized by the Bell Telephone Companies, Western Union, Postal Telegraph, and many other telephone, electric railway and power companies.

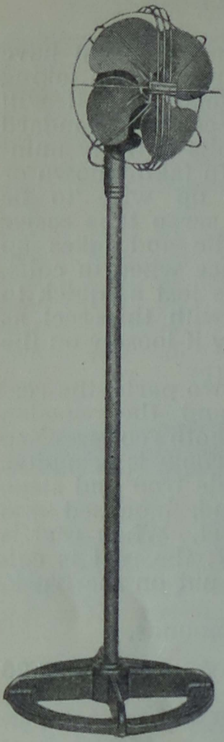
No. 318 is similar to No. 329 except that it has the tripping type mechanism.

Standard equipment for Nos. 318 and 329: 8-ft. steel chain with a pear-shaped link, 5-ft. steel pinch bar, and I-beam base with hand hole.

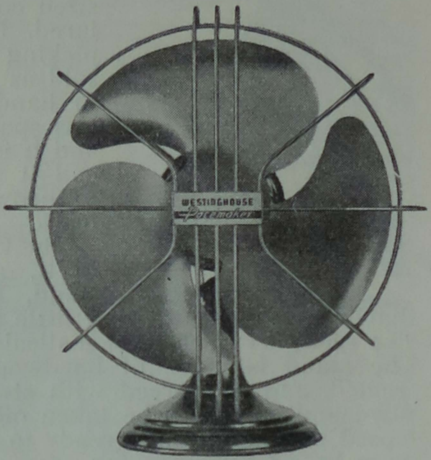
Cat. No.	Cap. Tons	Height Inches	Lift Inches	Wt.Lbs. Jack	Wt.Lbs. Complete	List Price
318	15	39	24	90	187	**$62.50**
329	15	37½	21	96	193	**70.00**

WESTINGHOUSE ELECTRIC FANS

THE PACEMAKER



10-Inch
Oscillating



8-Inch
Non-Oscillating

Modern in design and highly efficient in operation, desk and floor model Pacemakers are built for many years of satisfactory, trouble-free service.

"Power-sphere" blades are balanced, one-piece, formed construction, riveted to steel hub and reinforced at back by spot welded spider riveted to hub. Guards are one-piece, electrically welded, drawn steel wire. Angle of tilt, 15 degrees below to 25 degrees above horizontal.

Motor is four pole induction type with die-cast zinc alloy housing. Motor bearings are self-aligning, porous bronze sleeve type. Oscillating mechanism is double worm reduction with friction plate clutch, driving worm cut on alloy steel rotor shaft, and gear case fully enclosed and totally concealed in motor housing. Helical gears are reinforced Micarta.

Rotary snap type switch is on side of motor body. Quick "make" and "break" control is by nickel-plated knurled button easily grasped.

Base on 10- and 12-inch desk models is die-cast zinc alloy with felt padding around outer edge. The 8-inch desk model has round Moldarta base. Pedestal models have pedestal of steel tubing held in place in cast-iron base by set screws. Cord—6 foot, UL approved, flexible stranded copper wire: Type PO SJ rubber attachment plug.

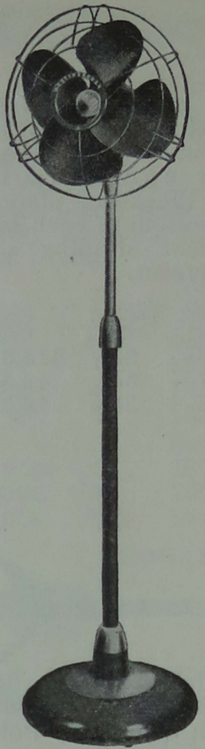
110 Volts, 60 Cycle A.C.; Speeds, 1500-1300 R.P.M.

Cat. No.	Blade Inches	Watts High Speed	CFM	Air Speed FPM	Shpg. Wt. Lbs.	Price Each
Pacemaker—Desk Models, Oscillating						
16B3	16	95	1000	1400	21	**$29.95**
12K3	12	52	1000	1150	10	**17.95**
10B3	10	45	675	950	8	**9.95**
Pacemaker—Desk Models, Non-Oscillating						
8KN3	8	28	400	850	4¼	**4.95**
Pacemaker—Floor Models, Oscillating						
12KP3	12	52	1000	1150	32	**22.45**
10KP3	10	45	675	900	31	**12.95**

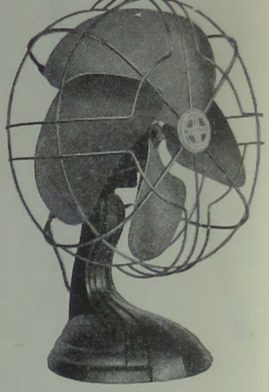
Watts, RPM, Air Displacement, CFM, and Air Speed FPM may vary 10% from values shown.

WESTINGHOUSE ELECTRIC FANS

THE POWER-AIRE



16-Inch
Oscillating



12-Inch
Oscillating

Four quiet type, wide disc area Micarta blades are mounted with five rivets each to steel spider locked to brass hub. Assembly balanced. One-piece guard is electrically welded of drawn steel wire. Finish: baked-on bronze enamel. Motor is shaded-pole induction type in 10-inch models; capacitor type in 12- and 16-inch models. Bearings are bronze sleeve type.

Oscillating mechanism is single worm type with spur gear reduction to crank arm. One-piece, die-cast zinc alloy gear case houses rear motor bearing and all parts of oscillating mechanism. Oscillating arc, 90°, adjustable to 45°. Switch located at rear of base, is 4-position, snap-acting, quick "make" and "break" type.

Base on desk models is one-piece, egg-shaped, sand-cast iron with five soft rubber feet. Base on pedestal models is sand-cast cloverleaf style. Upper column adjustable to four positions. Heavy duty UL approved 8-foot cord; Type SV rubber plug.

110 Volts—60 Cycle A.C.

Cat. No.	Blade Size	Watts High Speed	Speeds, RPM	Max. CFM	Air Speed FPM	Price Each
Power-Aire—Desk Models, Oscillating						
16A3	16	75	1050- 880- 750	1800	1450	**$37.50**
12A3	12	72	1400-1200-1050	1100	1250	**29.95**
10A3	10	55	1450-1250-1050	1000	1200	**14.95** 11.01
Power-Aire—Floor Models, Oscillating						
16AP3	16	75	1050- 880- 750	1800	1450	**45.00**
12AP3	12	72	1400-1200-1050	1100	1250	**35.00**

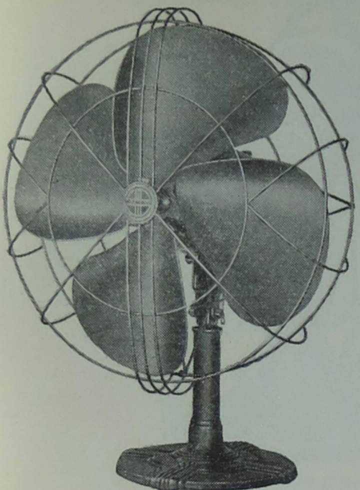
Shipping weights as follows:

16A3....24 lbs. 10A3 .... 9½ lbs. 12AP3....40 lbs.
12A3....17 lbs. 16AP3....60 lbs.

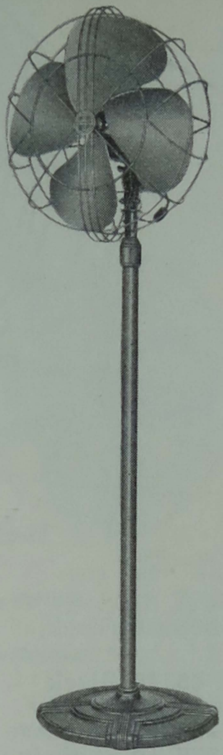
Watts, RPM, Air Displacement, CFM, and Air Speed FPM may vary 10% from values shown.

WESTINGHOUSE ELECTRIC FANS

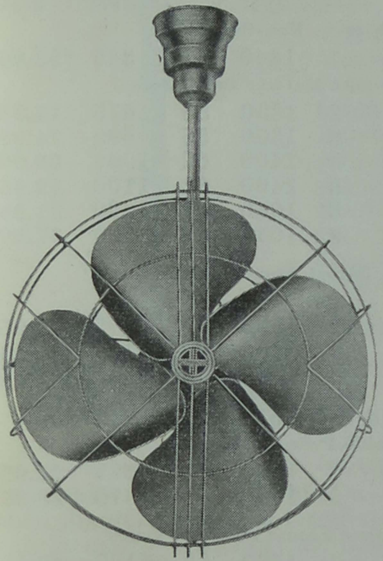
WHIRL-AIRE COMMERCIAL FANS



Counter Fan



Floor Fan



Ceiling Fan

The only long-range oscillating air circulator with deep-pitched, ultra-quiet, Micarta blades, individually mounted with five rivets to balanced steel spider. Motor is ¼ hp., fan type, split phase induction. Spot-welded, removable guard. Tilt Adjustment: Machined malleable iron hinge joint with friction clamp locked by through bolt and heavy steel lock washer; any angle of tilt between 15° below to 15° above horizontal may be obtained. Hammered bronze finish.

Two speeds: CFM at 1 ft., 4650; at 4 ft., 9000; Air Speed (FPM) at 1 ft., 2250; at 4 ft., 1245. 24-inch blades, all models.

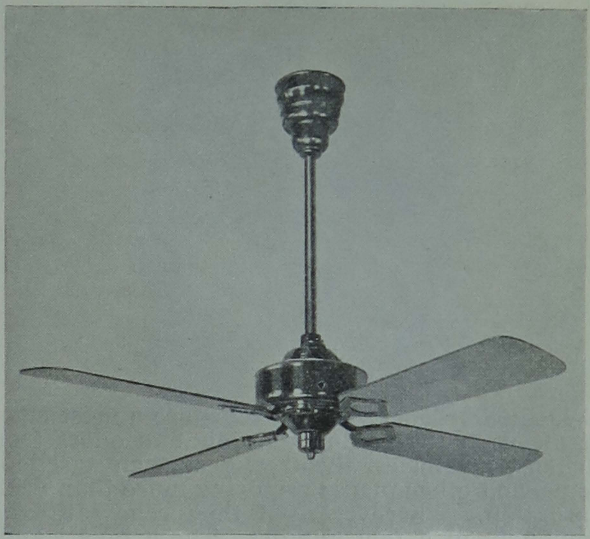
Whirl-Aire Roller Base for all floor models, 21½ inches square, has 3-inch solid rubber wheels. Cat. No. 922611; shipping weight, 16 lbs., **$5.00.**

Cat. No.	Type	Watts High Speed	Speeds RPM High	Speeds RPM Low	Shpg Wt. Lbs.	Price Each
Floor Models—110 Volts—60 Cycles A.C.						
24F3	OSC	340	1140	860	145	**$90.00**
24FN3	N.O.	340	1140	860	145	**70.00**
Counter Models—110 Volts—60 Cycles A.C.						
24S3	OSC	340	1140	860	108	**80.00**
24SN3	N.O.	340	1140	860	90	**60.00**
Ceiling Model—110 Volts—60 Cycles A.C.						
24CN3	N.O.	340	1140	860	73	**52.00**

Watts, RPM, and Air Displacement CFM may vary 10% from values shown.

WESTINGHOUSE ELECTRIC FANS

STANDARD CEILING FANS



Ceiling fans move a large volume of air with very little current consumption. They operate quietly and require little attention. Their construction is simple and their design handsome. The 52-inch fans are for large rooms, such as theatres, restaurants, large stores and large offices. The 36-inch fan is useful in doorways, narrow hallways, in smaller rooms or over display counters, work tables or desks.

Reversible Type: Blades may be set for up or downdraft, easily, quickly, merely by twisting any blade or pressing the convenient levers at blade foot to self-locking position. This mechanical reversing feature eliminates all danger of the fan unscrewing from hanger pipe when an updraft is created, for the motor always rotates in the same direction. Standard Type: Direction of air flow is downward and does not have the reversing feature.

The standard finish is black enamel. Special finishes can be supplied at an advance in price, and subject to approximately thirty days additional time for delivery.

Alternating current motors are of the induction type; direct current motors are series wound.

Each fan has four blades. The blades are of wood with walnut finish.

All fans shipped complete with ceiling canopy, oil can and oil, combination ceiling or fixture stud hook and insulated hanger. No hanger pipe is furnished with ceiling fans since ordinary ¾-inch black iron conduit is suitable for this purpose. Hanger pipe can be supplied at an additional cost of **$0.30** per foot.

Cat. No.	Watts High Speed	CFM	Speeds–RPM High	Speeds–RPM Med.	Speeds–RPM Low	Blade In.	Shpg. Wt.Lbs.	Price Each
Standard—110 Volts—60 Cycles A.C.								
52CG3*	120	7500	270	215	175	52	57	**$50.00**
36C3	95	4500	270	215	175	36	49	**40.00**
36CP3*	95	4500	270	215	175	36	42	**40.00**
Reversible—110 Volts—60 Cycles A.C.								
52R3	120	7500	270	215	175	52	62	**53.00**
36R3	95	4500	270	215	175	36	52	**43.00**

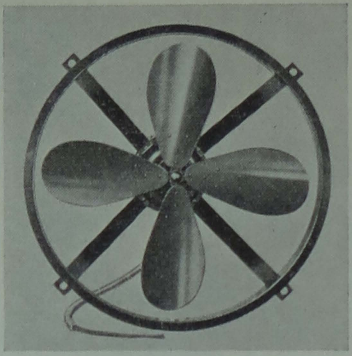
*Equipped with 3-speed pull switch instead of snap switch.

Blades and suspension details are packed separate from motor, making two containers per fan.

Watts, RPM, and Air Displacement CFM may vary 10% from values shown.

WESTINGHOUSE VENTILATING FANS

12- AND 16-INCH HORIZONTAL—VERTICAL



Westinghouse Ventilating Fans are a most efficient means for removing stale air and odors from kitchens, lavatories, theatres, restaurants, schoolrooms, and other places requiring more than usual ventilation. Wherever used they renew the air completely in a few minutes. These fans should be mounted in walls or partitions. Intake and exhaust pipes should be avoided; if such pipes are necessary, they should be as short and straight as possible. All fans are finished in dull black. Ball bearings are used on all vertical exhaust fans.

Air-cooled, high efficiency Westinghouse shaded pole induction motor. Totally enclosed. Quiet, rustproof, warp-proof Micarta blades. Heavy steel mounting ring, all joints securely riveted. Fan easily mounted in circular hole in board, partition or wall.

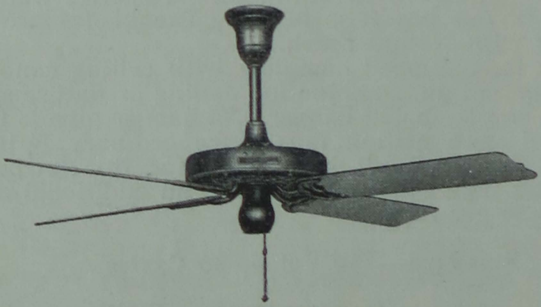
110 Volts—60 Cycles A.C.

Cat. No.	Blade In.	Watts High Speed	CFM	High RPM	Air Speed FPM	Shpg. Wt.Lbs.	Price Each
16FH3	16	95	1650	1010	1400	20	**$28.00**
12FH3	12	55	1050	1040	1050	17	**25.00**
16FV3	16	95	1650	1010	1400	20	**31.00**
12FV3	12	55	1050	1040	1050	17	**28.00**

Watts, RPM, Air Displacement CFM and Air Speed FPM may vary 10% from values shown.

HUNTER CEILING FANS

52-INCH NON-ADJUSTABLE



52-Inch Non-Adjustable Blade Type

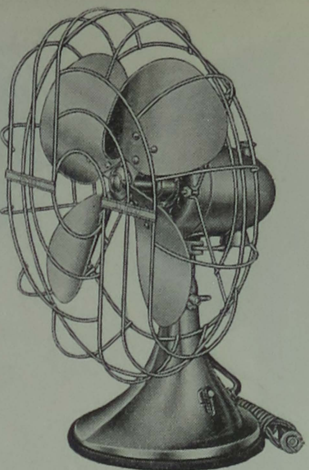
No. 107, 52-inch standard type; basswood non-adjustable blades; 3-speed pull switch. Furnished with ceiling hooks, oil, hanger and canopy, but no hanger rod.

No 363, 36-inch standard type. Non-reversible; 2-speed pull switch; black oxidized copper plated finish; black finish duralumin blades. No glassware holder.

110-120 Volts, 60 Cycles

Cat. No.	Watts			Speed R.P.M.			Shpg. Wt.Lbs.	Price Each
	High	Second	Low	High	Second	Low		
107	122	100	90	220	183	130	63	**$50.00**
363	78	......	53	325	......	245	33	**40.00**

HUNTER CENTURY DELUXE ZEPHAIR and STREAMLINAIR FANS



No. 253 12-Inch Streamlinair Oscillator

Desk and Wall Types

Cat. No.	Size In.	Style	Speeds	RPM	Watts	CFM	Price Each
		Standard 8-Inch, Non-Oscillating					
585	8	Black	1	1440	29	345	***$3.95**
		Streamlinair and DeLuxe Oscillators					
65	10	Black	2	1350	55	675	**11.95**
75	10	Black	3	1300	55	690	**14.95**
230	12	Standard	3	1400	62	1000	**25.00**
235	16	Zephair	3	1400	62	1100	**29.95**
262	16	Standard	3	1040	60	1600	**31.95**
265	16	Zephair†	3	1040	60	1650	**37.50**
		Super-Chrome Plated Finish, Oscillating					
253	12	Chrome-Streamlinair	2	1300	65	875	***18.95**
1253	12	Zephair	3	1400	62	1100	**34.95**
1653	16	Zephair†	3	1040	60	1650	**42.50**

DeLuxe Zephair and Streamlinair Pedestal Fans

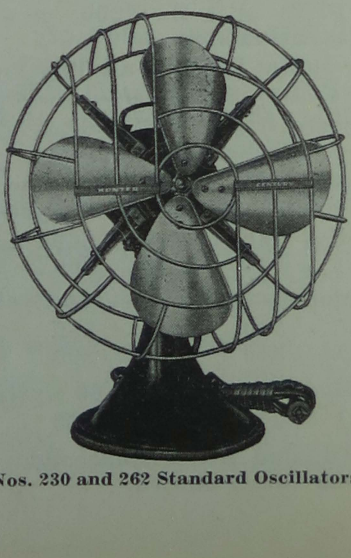
Cat. No.	Size In.	Style	Speeds	RPM	Watts	CFM	Price Each
		Adjustable Pedestal Types					
7510	10	Blk.-Chrome	2	1300	55	690	***22.95**
7512	12	Chrome	2	1300	65	875	**29.95**
		Adjustable Super-Chrome Pedestal Types					
1312	12	Zephair	3	1400	62	1100	**42.50**
1316	16	Zephair	3	1040	60	1650	**49.75**

*1 Year Guarantee; all others, 5 Year Guarantee.

†Has capacitor type motor.

On orders for 220-volt desk fans, add **$1.50** to list price.

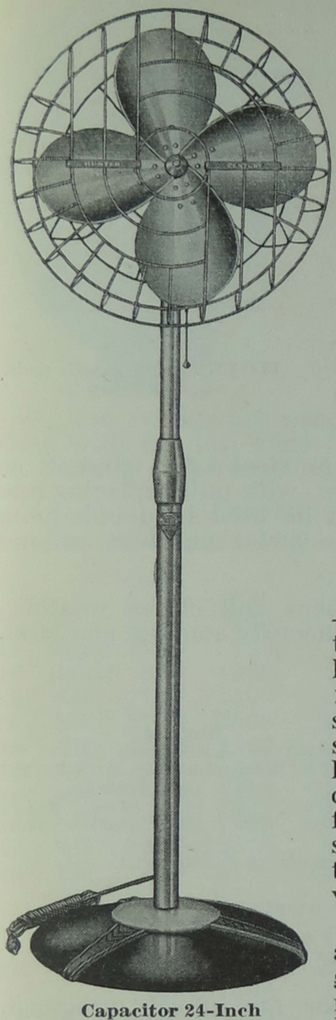
All fans carry Underwriters' Labels.



Nos. 230 and 262 Standard Oscillators

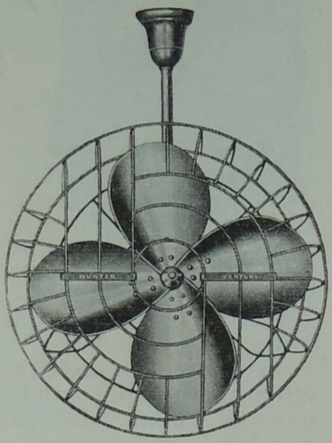
HUNTER CENTURY FANS

24-INCH CAPACITOR ZEPHAIR AIRSPREAD FANS—5 YEAR GUARANTEE



Capacitor 24-Inch Adjustable Pedestal Fans

24-Inch Ceiling Type
(Hanger Rod not included)



Motor Capacitor Type—Low current consumption, continuous duty, bright silver sprayed finish. Chrome plated switch holder. Motor is suspended in special Hunter designed rubber cushions — providing floating power with silencer effect — may be tilted upward or downward.

Ball Bearings — Front and rear double-sealed grease-packed — built to run without additional lubrication for years.

Zephair Aluminum Blades — 4-lightweight, 24-inch diameter, polished and sprayed with preserving lacquer—will not tarnish—shaped to provide even distribution of air and prolong life of motor. Bright udylite modernistic design chip-proof guard—harmonizes with chrome trimmings and aluminum blade.

Pedestal Column—Made of large size seamless steel tubing, adjustable between 5 feet and 8 feet—column and coupler plated in heavy durable chromium.

Base—Black baked-wrinkle finish with chromium plated cap—highly ornamental appearance. Designed with special inside rubber insulation to prevent vibration—balanced to insure safety with portability.

Pedestal and Counter Types — Equipped with extra length Underwriters' approved rubber cord and plug.

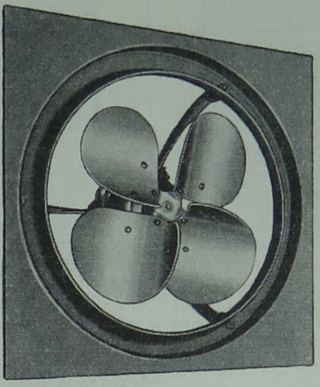
110-120 Volts, 60 Cycles

Cat. No.	Type	Speed	Watts High	Watts Low	R.P.M. High	R.P.M. Low	Shpg. Wt. Lbs.	Price Each
141Z	Ceiling	1	210	......	1140	......	57	**$48.00**
142Z	Ceiling	2	210	150	1140	840	57	**57.75**
241Z	Pedestal	1	210	......	1140	......	121	**65.25**
242Z	Pedestal	2	210	150	1140	840	121	**75.00**
341Z	Counter	1	210	......	1140	......	73	**56.25**
342Z	Counter	2	210	150	1140	840	73	**66.00**

Standard blades can be furnished for any of the above types at no additional charge.

HUNTER VENTILATING FANS

SQUARE MOUNTING FRAME—1 AND 2-SPEED FANS



Features include: Capacitor type motor; Hunter design deep orifice; square, easy mounting frame; fully enclosed motor; heavy-duty bearings; three supporting arms mounted in rubber; switch furnished with 2-speed fans; durable green finish; equipped with wires for connection; ball-bearing type for vertical and horizontal operation.

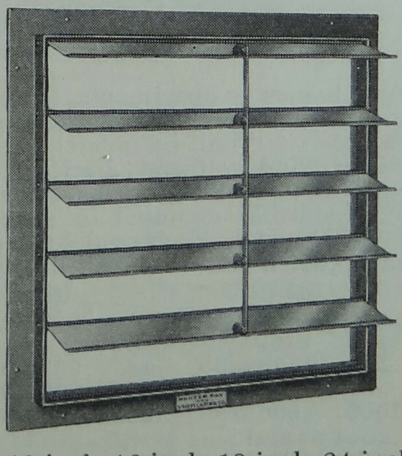
Sleeve-bearing types are made to operate with motor shaft in horizontal position only.

110-220 Volts, 60 Cycles, Single Phase

Cat. No. 110 Volt	Cat. No. 220 Volt	Size Fan	High Speed Watts	High Speed Amps.	High Speed RPM	High Speed CFM	Price Each
Single-Speed, Sleeve-Bearing Ventilating Fans							
6212	**7212**	12	48	.52	1450	1100	**$25.00**
6216	**7216**	16	60	.75	1040	1650	**28.00**
Two-Speed, Ball-Bearing Ventilating Fans							
1212	**5212**	12	48	.52	1450	1100	**35.00**
1216	**5216**	16	60	.75	1040	1650	**38.00**

Two speeds may be provided for Nos. 6212, 6216, 7212 and 7216 by use of two-speed switch, add **$2.50**.

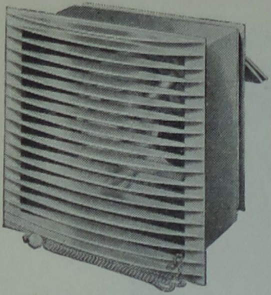
AUTOMATIC SHUTTERS



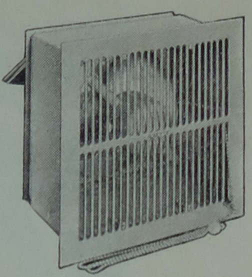
Size......	12-inch	16-inch	18-inch	24-inch	30-inch
Price....	**$6.90**	**$9.30**	**$11.40**	**$16.20**	**$25.80**

ILG KITCHEN VENTILATING FANS

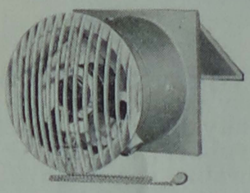
BUILT-IN MODELS FOR NEW OR RENOVATED HOMES



ILGAIR . . . for larger kitchens. Grille conceals fan mechanism. French Gray Cabinet, with mirror-finish Aluminum Grille.



ILGETTE . . . for medium-size kitchens. Cabinet finished in French Gray, with mirror-finish Aluminum Grille.



ILGVENT . . for small kitchens. Polished Aluminum Grille. French Gray Cabinet.

Streamlined, modern unit becomes an integral, permanent part of the building wall. Simple, easy to install in new or remodeled homes or apartments. One-piece, weather-tight door on outside of house is opened or closed by beaded pull chain, simultaneously causing fan motor to start or stop. Telescopic cabinets, made of 16-gauge rust-resisting steel, permit depth adjustments for different wall thicknesses

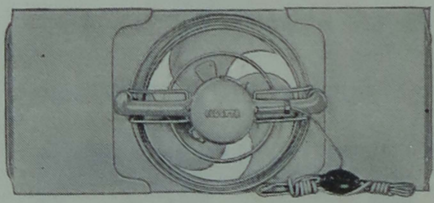
Standard Sleeves: Ilgvent, 5¾ to 8½ inches and 8½ to 13 inches. Ilgette, 8½ to 13 inches; Ilgair, 9½ to 15 inches. Special Sleeves available at extra cost.

Model	Cabinet Dimens.	Rating CFM	Rating RPM	Rating Watts	Shpg. Wt. Lbs.	110 or 220 V. 50 or 60 Cy. AC	110 V. DC or 25 Cy. AC
Ilgvent	†10⅛x10⅛	350	1550	35	20	**$34.00**	....
Ilgette	12 x12	500	1550	40	28	**44.00**	**$44.00**
***Ilgette**	12 x12	500	1550	55	29	**62.50**	....
Ilgair	14⅝x14⅝	1000	1550	120	45	**60.00**	**64.00**
***Ilgair**	14⅝x14⅝	1000	1550	135	46	**78.50**	....

***Automatic Ilgair and Ilgette**—equipped with an auxiliary small motor in place of pull-chain; these models can be operated by an electrical switch.

†Flange; sleeve, 9$\frac{1}{16}$ inches diameter.

PORTABLE MODELS



For rented homes or apartments, or for installations where wall space or room arrangement does not permit use of a "Built-in" model.

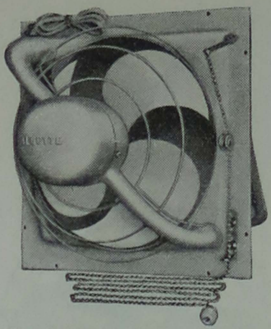
Mounted on window frame, back of sash, permitting window to be locked, opened or closed at will. Fan is sturdily mounted in all-steel Ivory finish adjustable panel. Each model complete with 10-foot cord, switch-plug and sash lifting handles.

Portable Models	Rating CFM	Rating RPM	Rating Watts	Shpg. Wt.Lbs.	110 or 220 V. 50 or 60 Cy. AC	110 V. DC or 25 Cy. AC
Ilgvent	350	1550	35	18	**$22.00**	....
Ilgette	500	1550	40	22	**29.00**	**$29.00**
Ilgair	1000	1500	120	35	**42.00**	....

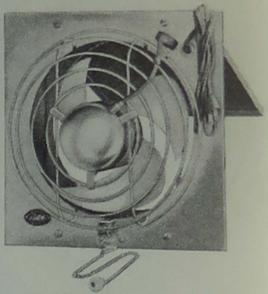
Standard Panel Widths: 26 to 36 inches and 36 to 46 inches. Portable models can be furnished with 20- to 24-inch panel at **$1.50** net extra; 46- to 56-inch panel at **$3.50** net extra.

ILG KITCHEN VENTILATING FANS

PACKAGE-TYPE MODELS FOR WINDOW PANE INSTALLATION



ILGAIR for large kitchens. ILGETTE for medium-size kitchens.



ILGVENT for small, compact kitchens.

Permanently installs in steel sash window or other small panel window, with unit replacing one pane of glass. Also can be used in double-hung windows with wood or metal mullions around panel.

Beaded pull chain opens and closes weather-tight outer door, simultaneously starting and stopping fan operation.

Model	‡Panel Dimens.	Rating CFM	Rating RPM	Rating Watts	Shpg. Wt. Lbs.	110 or 200 V. 50 or 50 Cy. AC	110 V. DC or 25 Cy. AC
Ilgvent	12 x12	350	1550	35	12	**$28.00**	....
Ilgette	12 x12	500	1550	40	14	**38.00**	**$38.00**
Ilgair	10¾x10¾	1000	1550	120	25	**52.00**	**56.00**

‡Special size panels are available at extra cost.

ILG PORTABLE FLOOR FANS

The ILG portable floor fan affords practical, sensible and economical means of relief wherever the workman must endure the evils and discomfort of intense heat. Hot spots, closely confined departments and hot air pockets all yield to the 90-foot blast of cooling, refreshing air when the ILG portable floor fan covers them.

This big man-cooling fan can be placed anywhere. It is portable, self-contained, completely equipped and ready to handle any heat problem. Running at high speed, this fan should be used where its air noise is not a consideration.

The propeller is of the four-blade type, capable of hurling a tremendous blast of air in a straight line. It is of one-piece construction, keyed to the motor shaft. Heavy steel mesh guards cover the fan in front and back offering complete protection of fan and user.

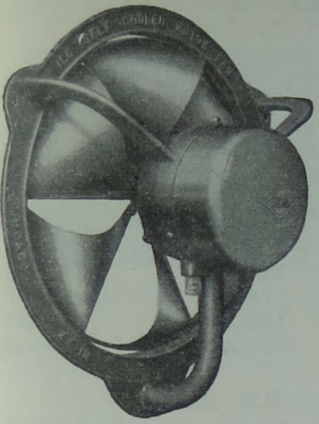
Equipped with heavy cast iron base the ILG portable floor fan has a very low center of balance. It can be safely moved on a scoop truck. A hook is also provided so that it can be moved by a crane if desired. A starting switch completes the equipment on the fan. The 12-inch size furnished with extension cord and plug.

Size Inches	C.F.M.	R.P.M.	Watts Input	Wt. Lb.	220 or 440 V. 3 Phase A.C.	115 or 230 V. D.C.
12	3200	3400	230	140	**$103.00***	**$115.50**
24	8000	1140	500	350	**294.00**	**388.50**
30	16000	1140	750	400	**357.00**	**353.50**
36	24000	1140	1200	550	**416.00**	**604.00**

*110 or 220 volts 1 phase only.

ILG VENTILATING FANS

SELF COOLED MOTOR PROPELLER



Ilg fans are finished in distinctive Ilg green special enamel. Every fan is given a careful heat and running test on the exact current, voltage and frequency on which it will be used. Consequently it is certain that fan will operate properly when installed. Flanges are liberally proportioned, protecting fan wheel and making a pleasing and durable installation possible.

Ilg fan ratings are guaranteed to be in accordance with the test code of the American Society of Heating and Ventilating Engineers.

Alternating Current

Constant Speed — One Phase — 60 Cycles

Size	Speed R.P.M.	C.F.M.	Watts Input	Motor Frame	Shpg. Wt. Lbs.	List Price 110-220 Volts
Ilgette	1550	450	40	41	12	**$25.00**
12″ Ilgair	1140	750	70	13	23	**40.00**
16″ Ilgair	855	1000	100	15	48	**68.50**
16″ SH	1140	1400	100	15	48	**66.00**
18″ SH	1140	2300	170	D 87	80	**94.50**
20″ SH	1140	2300	250	D 87	96	**115.00**
24″ SH	855	4100	275	D102	186	**153.50**
30″ SH	685	7300	450	D101	216	**231.00**
36″ SH	570	9650	500	D104	445	**346.50**
42″ SH	490	12300	800	D104	550	***407.50**
48″ SH	490	18400	1300	D105	780	***504.00**

Alternating Current

Two Speed — One Phase — 60 Cycle†

16″ S	855	1000				
	1140	1400	100	15	60	**$88.00**
18″ S	855	1750				
	1140	2300	170	D 87	84	**121.00**
20″ S	855	2400				
	1140	3200	250	D 87	96	**143.00**
24″ S	600	2880				
	855	4100	275	D102	190	**203.00**
30″ S	500	5420				
	685	7300	450	D101	220	**265.00**
36″ S	400	6900				
	570	9650	500	D104	450	**378.00**
42″ S	380	9800				
	490	12300	800	D104	568	***446.50**

Alternating Current

60 Cycle — Two or Three Phase — Constant Speed

Size	Speed R.P.M.	C.F.M.	Watts Input	Motor Frame	Price Each 220-440 Volt	Price Each 550 Volt
18M	1140	2300	120	87	**$128.00**	**$154.50**
20M	1140	3200	200	87	**143.00**	**177.50**
24M	855	4100	250	102	**165.00**	**198.50**
30M	685	7300	400	101	**198.50**	**231.00**
36ML	490	8300	460	104	**319.50**	**363.50**
36M	570	9650	460	104	**319.50**	**363.50**
42M	490	12300	800	104	**367.50**	**409.50**
48M	490	18400	1300	105	**430.50**	**483.00**
54M	425	23200	1950	107	**697.00**	**777.00**
60M	380	28400	2000	108	**903.00**	**1008.00**
72M	315	40500	2100	109	**1092.00**	**1218.00**

*220 volts only.

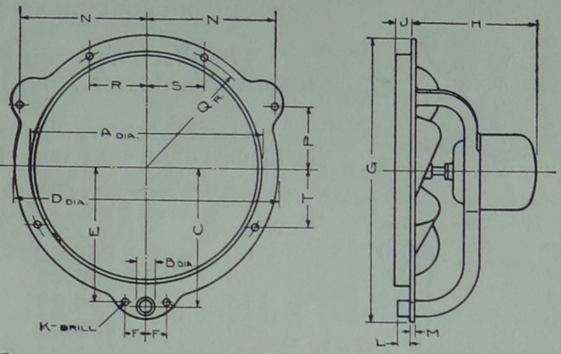
†List prices on Type "S" fans include speed controllers with indicating switch having high, low and off positions.

For 50 cycle, use same list price.

ILG VENTILATING FANS

SELF COOLED MOTOR PROPELLER

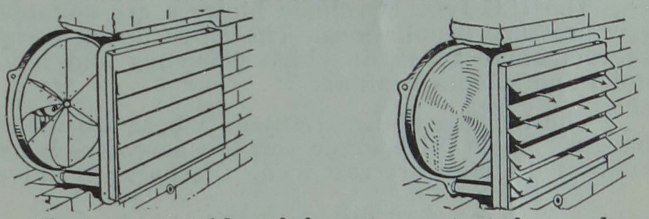
Dimensions in Inches



Measurements A and B are diameter of opening to be cut for installation.

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
12	12¼	1 1/16	7 3/16	13½	7 1/16	1	14¾	8⅛	¾	9/32	½	¼	6 3/16	3 9/16	....
16	16¼	1¼	9¾	18	9⅜	1 13/32	19 9/16	9¼	1	11/32	⅝	¼	8½	4	....
18	18½	1¼	11 1/16	21	10 11/16	1 15/16	22 13/16	10¼	1⅝	13/32	1¼	⅜	10⅛	4⅝	....
20	20⅝	1¾	12⅞	23⅞	12 5/16	2 5/16	26⅜	10⅞	1	7/16	¾	5/16	11⅜	5 5/16	....
24	24¾	2⅛	15	28⅛	14 7/16	2 13/16	30½	16	1 13/16	7/16	1	7/16	13⅜	6¼	....
30	30¾	3	18½	34½	17¾	3¼	37¾	17	2⅛	17/32	1½	⅜	16 5/16	7⅝	....
36	36⅞	3⅝	21⅝	40 9/16	20½	3 13/16	44½	20½	2 1/16	9/16	1 9/16	9/16	19 3/16	8 15/16	....
42	42⅞	4⅛	25⅛	46¾	24 1/16	3¼	51⅛	20½	2¼	9/16	1¾	⅝	22⅛	10 5/16	22⅜
48	49⅛	4⅞	29 7/16	54¾	28¼	4	60	24¾	2½	11/16	1⅝	⅝	25⅝	11 15/16	25⅝
54	55¾	5	33⅛	60⅝	31 3/16	4⅝	67½	25½	2½	11/16	1⅝	⅝	28⅜	13¼	28⅞
60	61⅛	6	36 1/16	66¾	34	4⅝	72⅞	30	2⅝	11/16	1⅝	¾	29¾	17 3/16	31¾
72	73¼	5½	44 1/16	79¼	40 11/16	6⅞	88¼	32½	3	13/16	2	⅞	35¾	20⅝	37⅞

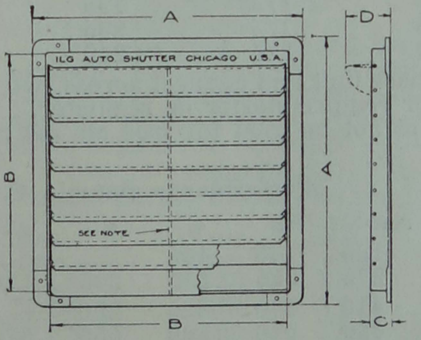
ILG AUTOMATIC SHUTTERS



Used on outside of fans to protect fans when not running and to keep out wind, rain and cold.

Size Inches	Wt. Lbs. Each	Price Each	Size Inches	Wt. Lbs. Each	Price Each
9½	7	**$7.50**	**36**	112	**$54.00**
12	10	**8.50**	**42**	152	**79.00**
16	19	**11.50**	**48**	188	**105.00**
18	30	**14.00**	**54**	195	**126.00**
20	43	**17.00**	**60**	210	**178.00**
24	67	**20.00**	**72**	314	**199.50**
30	80	**38.00**			

Dimensions, Inches



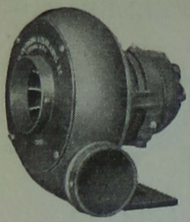
Size	A	B	C	D
9½	12	9 13/16	1⅝	4¾
12	14¼	12⅜	1⅜	6½
16	18¼	16⅜	2 1/16	7¼
18	21⅞	19	2⅝	7
20	24	21	2 13/16	7
24	28¼	25	2⅝	7¼
30	33½	30	2 7/16	7½
36	41¾	38	2¾	7½
42	48	44	3	7¾
48	54⅛	49⅝	2½	8
54	60⅝	56⅜	2½	8
60	66⅝	62⅛	2½	8½
72	79⅛	74⅝	2½	8½

VARIABLE SPEED CONTROLLERS

60 Cycle—Two and Three Phase

Two Speed	Shpg. Wt. Lbs.	Price Each	Variable Speed	Shpg. Wt. Lbs.	Price Each
18	22	**$80.00**	**42**	55	**$169.00**
20	24	**80.00**	**48**	74	**200.00**
24	31	**80.00**	**54**	94	**256.50**
30	31	**88.50**	**60**	94	**256.50**
36	31	**88.50**	**72**	94	**265.50**

ILG TYPE P VOLUME BLOWERS



The ILG direct-connected electric volume blowers are applicable for exhausting dust and fumes from laboratories and polishing rooms, removal of steam and heavy vapors from cooking vats in dye houses, breweries, canning factories, etc.

The discharge can be changed to four different positions, making it possible to install the blower from different angles, thus avoiding friction in short bends.

These blowers are particularly suitable for laboratory exhaust because housing is of cast-iron and wheel of cast aluminum, steel or cast-iron as desired.

		ALTERNATING CURRENT 60 Cycle 1 Phase Constant Speed			DIRECT CURRENT		
Size	R.P.M.	Weight	110 Volts	220 Volts	Weight	110 Volts	220 Volts
7½P	3400	62	**$63.00**	**$65.00**	62	**$60.00**	**$63.00**
10P	1720	68	**76.00**	**78.00**	68	**78.00**	**82.00**
15P	1720	115	**95.00**	**100.00**	115	**107.00**	**113.00**
20P	1720	285	**252.00**	**258.50**	285	**202.00**	**210.00**

Enclosed speed regulators furnished with D.C. blowers.

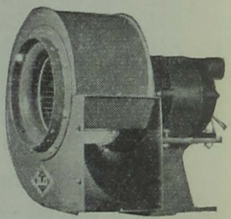
20P Blower can be furnished with 2 or 3 phase, 220 or 440 volt, 60 cycle, 1720 R.P.M. A.C. motors **250.00**

PERFORMANCE TABLE

STATIC PRESSURE IN INCHES OF WATER

Blower Size No.	Rated R.P.M.	¼		½		¾		1		1½		2		3	
		CFM	Watts Input	CFM	Watts Input	CFM	Watts Input	CFM	Watts Input	CFM	Watts Input	CFM	Watts Input	CFM	Watts Input
7½P	3400	215	190	210	190	200	185	190	180	165	175	135	170	70	150
10P	1720	270	150	235	149	200	148	160	146	85	138	0	......	......	......
15P	1720	415	230	375	215	330	200	280	190	150	165	0	......	......	......
20P	1720	1180	820	1130	780	1085	765	1040	740	945	685	845	635	600	510

ILG TYPE B VOLUME BLOWERS



The ILG type B volume blowers are suitable for all kinds of small volume, low pressure installations. The latest development in small blowers of this type, they combine surpassing high efficiency and low power consumption. They are quiet and smooth running.

The housing and multi-blade wheel are die-cut steel. The wheel is carefully balanced. The inlet flange and the base which bears both housing and the direct connected motor, are cast iron. Discharge is universal.

				A.C.		115 or 230 Volts D.C.	
Size	R.P.M.	H.P.	Shipping Wt. Lbs.	110 or 220 V. 60—1 Ph.	220 or 440 V. 60 Cy.—3 Ph.	Less ¶ Regulator	With Regulator
B 9	1140	1/70	45	**$47.00**	†	**$63.00**	**$69.50**
B 9	1750	1/20	55	**45.00**	†	**73.50**	**82.00**
B 12	1140	1/20	75	**66.00**	†	**88.00**	**97.00**
B 12‡	1750	1/6	85	**55.00**	†	**94.50**	**105.00**
B 15	855	1/10	120	**105.00**	†	**113.50**	**126.00**
B 15	1140	1/7	120	**78.00**	†	**115.50**	**130.50**
B 15‡	1750	1/2	130	**112.00**	**$146.00**	**147.00**	**191.00**
B 18	855	1/7	160	**136.00**	**144.00**	**162.00**	**172.00**
B 18	1140	1/3	170	**152.00**	**172.00**	**166.00**	**185.00**
B 18‡	1750	1 1/4	195	**231.00**	**210.00**	**223.00**	**298.50**
B 21	855	1/3	225	**202.00**	**164.00**	**225.00**	**241.50**
B 21	1140	3/4	240	**230.00**	**198.00**	**248.00**	**321.50**

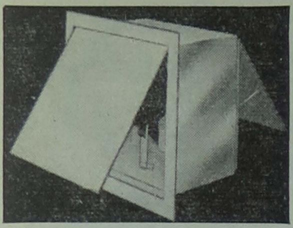
†Use 220 volt, 1 phase unit and connect across two wires of the 3 phase line.
¶½ H.P. and larger require starter or regulator.
‡These units should not be used for free air delivery where quietness is essential.

Performance Data in C. F. M. at Various Pressures

Size	R.P.M.	H.P.	Free Air	⅛	¼	⅜	½	⅝	¾	⅞	1	1¼	1½	1¾	2
B 9	1140	1/70	180	145	100	....	....	....	....	....	....	....	....	....	....
	1750	1/20	275	255	235	205	170	....	....	....	....	....	....	....	....
B12	1140	1/20	410	370	320	250	....	....	....	....	....	....	....	....	....
	1750	1/6	630	610	580	550	515	475	435	390	300	....	....	....	....
B15	855	1/15	590	520	430	300	....	....	....	....	....	....	....	....	....
	1140	1/7	790	725	680	610	530	400	....	....	....	....	....	....	....
	1750	1/2	1200	1175	1140	1100	1070	1030	990	940	900	780	600	....	....
B18	855	1/7	1000	920	820	710	500	....	....	....	....	....	....	....	....
	1140	1/3	1340	1275	1210	1140	1070	985	880	720	....	....	....	....	....
	1750	1 1/4	2050	2000	1975	1935	1900	1850	1810	1770	1720	1610	1490	1360	1200
B21	885	1/3	1580	1480	1380	1260	1130	960	750	....	....	....	....	....	....
	1140	3/4	2100	2030	1960	1880	1800	1700	1620	1500	1400	1000	....	....	....

AUTOVENT KITCHEN CABINET VENTILATORS

SELF-OPERATING DOORS—REMOTE CONTROL



A new type fan designed to remove cooking odors the modern way. Unsightly operating rods, pull cords and chains eliminated. Unit operated by remote control. Just push conveniently-placed switch—inside and outside doors open simultaneously and quiet running fan goes into operation. Remote control makes possible out-of-the-way placement of units as well as over-the-range installations heretofore considered unhandy.

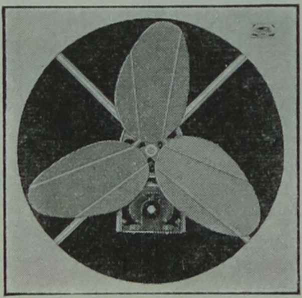
Fan wheels are of exclusive Autovent non-overloading design. Motors are exceptionally quiet and give trouble-free performance. No interference with radio. This remote control, self-operating unit meets competitive prices and costs no more to operate than an average electric light bulb.

When ordering Autovent Kitchen Cabinet Ventilators be sure to order the unit with the wall sleeve that fits requirements. Order the A-Unit for frame, stucco or brick veneer residences. Order the B-Unit for solid brick, stone veneer and apartment house construction.

110-Volt, 60-Cycle, A.C., Single Phase

Style	Sleeve Adjustable	C.F.M.	R.P.M.	Approx. Shpg. Wt.	List Price
A-Unit	6½″— 9″	500	1500	25 lbs.	**$54.00**
B-Unit	9 ″—12″	500	1500	27 lbs.	**54.00**

COOLVENT ATTIC FANS



Sturdy, compact construction and economical operation are features of Coolvent Attic Fans. With the use of sheaves or pulleys and V-belt drives the fans operate at slow speeds of from 281 to 577 R.P.M., depending upon fan wheel diameters which range from 24 to 54 inches.

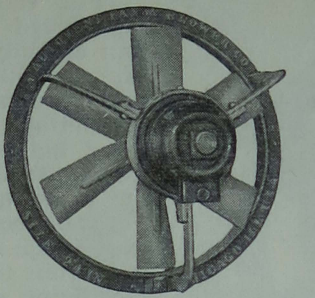
Motors are from ⅙ H.P. to ¾ H.P. Resultant certified air capacities vary from 4,070 to 21,100 cubic feet per minute. The fan wheel itself is of the 3-blade design to insure maximum efficiency with minimum horsepower requirements and quietness of operation.

The entire unit of quality construction gives quiet delivery of certified air quantities. Time switches can be installed for turning off the fan at any given hour and when thermostats are used, the fluctuation of temperatures will automatically switch the system on and off as needed.

Unit No.	C.F.M.	Constant Speed 110V. AC. 1 Phase	Two Speed 110V. AC. 1 Phase	Constant Speed 220V. AC. 1 Phase	Approx. Shpg. Wt. Lbs.
24-C	4,070	**$ 88.00**	**$126.00**	**$ 97.00**	95
30-C	6,100	**98.00**	**146.00**	**101.00**	120
36-C	8,200	**114.00**	**164.00**	**118.00**	150
42-C	12,000	**146.00**	**181.00**	**146.00**	195
48-C	16,100	**209.00**	**243.00**	**209.00**	240
54-C	21,100	**270.00**	**324.00**	**270.00**	340

AUTOVENT PROPELLER FANS

"31 SERIES" ACID-MOISTURE PROOF PROPELLER FANS



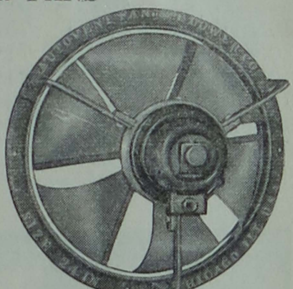
Designed for use where acid fumes, gases or excessive moisture conditions are encountered, especially in process industries, mining, etc. Fully enclosed motors. The Autovent "31 Series" non-overloading type of fan wheels are impregnated with either Bakelite lacquer or Heresite baked (375°) finishes. Autovent Vapor-Explosion Proof fans also available with non-ferrous fan blades and motors that carry Underwriters' Label, Class I, Group D rating. National Association of Fan Manufacturers' ratings.

Fully Enclosed Motors—Constant Speed

Size Type	CFM	Approx. RPM	Shpg. Wt. Lbs.	110 Volt A.C. 60 Cy. 1 Phase	Add to List for Heresite Coated Wheels
12 ASN	750	1100	40	**$54.00**	**$16.00**
12 ASR	1050	1600	43	**63.00**	**16.00**
16 ASN	1600	1140	75	**75.00**	**19.50**
16 ASR	1800	1725	80	**75.00**	**19.50**
18 ASN	2500	1140	90	**94.00**	**22.50**
18 ASR	2900	1725	100	**94.00**	**22.50**
20 ASN	3100	1140	115	**115.00**	**26.00**
20 ASR	3600	1725	120	**115.00**	**26.00**
24 ASL	5250	850	155	**185.00**	**30.00**
24 ASN	4500	1140	155	**148.00**	**30.00**
30 ACL	7200	850	220	**208.00**	**37.00**
30 ACN	8100	1140	230	**208.00**	**37.00**
36 ACT	10000	690	350	**298.00**	**44.00**
36 ACL	12500	850	425	**298.00**	**44.00**

Above list prices cover fans with Bakelite coated fan wheels—for Heresite finish note list additions.

AUTOVENT "B-W" (BUCKET WHEEL) PROPELLER FANS



Wherever a ventilating problem requires a slow speed operating fan the "B-W" (Bucket Wheel) Propeller fan is recommended. It comes in many sizes to fit the air displacement needed and its blades are so designed that they literally scoop the odors, fumes and gases out of spaces requiring proper ventilation.

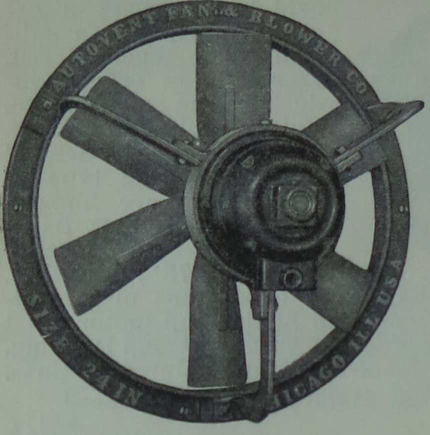
Quiet operating, patented, air cooled motors are available for alternating current, single phase and multiphase, constant speed, and variable speed as well as direct current, constant speed or with speed regulation. Certified ratings.

Constant Speed Motors
A.C.—Single Phase—Either 110 or 220 Volts
60 Cycles

Size Type	CFM Max.	Approx. RPM	Shpg. Wt. Lbs.	List Prices
12 SN	750	1100	39	**$42.00**
12 SR	1050	1725	42	**55.00**
16 SN	1500	1140	63	**67.00**
18 CL	1750	850	80	**96.00**
18 CN	2250	1140	81	**94.00**
20 CL	2300	850	110	**116.00**
20 CN	2900	1140	115	**110.00**
24 CCL	3450	850	145	**140.00**
24 CL	4500	850	160	**180.00**
30 CL	6200	850	190	**214.00**
30 CT	6700	690	230	**245.00**
36 CT	9700	690	380	**350.00**

AUTOVENT "31 Series" PROPELLER FANS

(NON-OVERLOADING TYPE)



For economical and efficient ventilation of every type, we introduced several years ago the Autovent "31 Series" Propeller Fan embodying the non-overloading power characteristic feature. The propeller fan wheel may be termed a limit load design, as it will not churn air or overload the motor under conditions of normal restriction. Each fan wheel of every size, is perfectly balanced and trued before being tested and released for shipment. Although Autovent "31 Series" Propeller Fans are very reasonably priced, the usual quality of construction and efficiency of operation of Autovent equipment has in no way been sacrified. Many years of experience have taught us that there is a limit beyond which it is dangerous to decrease the number of blades in a fan wheel without sacrificing efficiency and therefore all smaller sizes of Autovent Fans have wheels comprising six blades, whereas the larger sizes are equipped with eight blade wheels. The special centripetal construction of the fan wheel causes inner air currents to converge and carry away radiated heat, giving complete motor cooling.

Like all Autovent products, Autovent "31 Series" Fans are tested and rated in accordance with the Standard Test Code as adopted by the National Association of Fan Manufacturers.

CONSTANT SPEED—SPLIT PHASE MOTORS

A.C.—Single Phase—110 or 220 Volts—60 Cycle

Size Type	Motor HP	CFM Max.	Appr. RPM	Appr. Shpg. Wt. Lbs.	List Prices
9SIR	....	450	1550	7	**$21.00**
12SIN	1/40	750	1100	38	**42.00**
12SIR	1/30	1050	1600	41	**51.00**
16SIL	1/35	1300	850	60	**65.00**
16SIN	1/12	1600	1140	61	**59.00**
16SIR	1/10	1800	1600	62	**61.00**
18BIL	1/10	1850	850	75	**88.00**
18BIN	1/8	2500	1140	77	**81.00**
18BIR	1/5	2800	1725	85	**79.00**
20BIL	1/10	2400	850	105	**103.00**
20BIN	1/8	3000	1140	110	**101.00**
20BIR	1/4	3550	1725	115	**99.00**
24BIL	1/6	3650	850	140	**117.00**
24BIN	1/4	4500	1140	150	**110.00**
24SCL	1/3	5250	850	175	**170.00**
30SCT	3/8	7500	690	215	**230.00**
30SCL	1/3	7100	850	210	**182.00**
30SCN	1/2	8100	1140	220	**179.00**
36SCT	1/2	10000	690	320	**275.00**
36SCL	3/4	12500	850	370	**275.00**

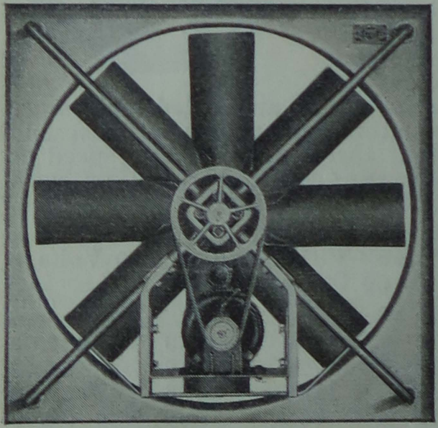
24" SCL up to 36" SCL sizes equipped with condenser type motors.

CONSTANT OR TWO SPEED

A.C.—Multiphase—220 or 440 Volts—60 Cycle

Size Type	Motor HP	CFM Max.	Appr. RPM Max.	Appr. Shpg. Wt. Lbs.	List Prices Constant Speed	List Prices Two-Speed
16HMN	1/8	1700	1140	64	**$ 97**	**$107**
16HMR	1/5	1950	1725	66	**100**	**110**
18HMN	1/8	2350	1140	77	**106**	**118**
18HMR	1/4	2950	1725	90	**106**	**118**
20HMN	1/4	3450	1140	115	**116**	**132**
20HMR	1/4	3550	1725	115	**116**	**132**
24HML	1/6	3850	850	145	**132**	**150**
24HMN	1/4	4500	1140	150	**132**	**150**
24HM	1/3	5250	850	175	**155**	**173**
30HML	1/3	7100	850	210	**176**	**198**
30HMN	1/2	8100	1140	220	**176**	**198**
36HMT	1/2	10000	690	335	**286**	**341**
36HML	3/4	12500	850	390	**275**	**330**
42HMT	1.0	13500	690	510	**385**	**430**
48HMT	1 1/2	18900	690	650	**480**	**530**
54HME	2	21500	575	890	**710**	**750**
60HME	2 1/2	26500	480	1200	**875**	**925**
72HME	3	38000	480	1500	**1075**	**1125**

List prices shown in two-speed column include two-speed switch.



ALLVENT Low-Cost VENTILATING FANS

A commercially QUIET unit for all ventilating purposes. Equipped with Autovent "31 Series" non-overloading type fan that does not churn the air. Higher motor efficiency. Designed for office, factory and commercial installations. Low original cost for maximum air quantities. Minimum service and maintenance costs.

Like all Autovent products, Allvent Fans are tested and rated in accordance with the Standard Test Code as adopted by the National Association of Fan Manufacturers.

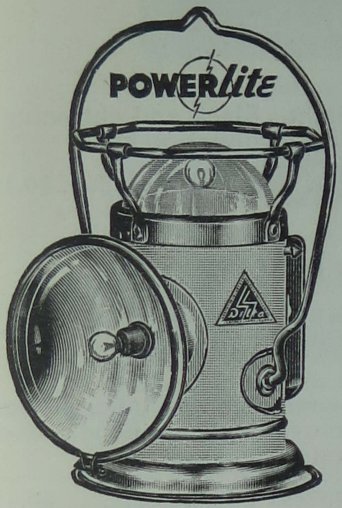
Unit No.	C.F.M.	Constant Speed 110V. A.C. 1 Phase	Two Speed 110V. A.C. 1 Phase	Constant Speed 220V. A.C. 1 Phase	Approx. Shpg. Wt.Lbs.
224-A	5000	**$ 92.00**	**$132.00**	**$101.00**	105
230-A	7200	**120.00**	**157.00**	**120.00**	135
236-A	9000	**135.00**	**168.00**	**135.00**	165

Unit No.	C.F.M.	Constant Speed 110V. A.C. 1 Phase	Two Speed 110V. A.C. 1 Phase	Constant Speed 220V. A.C. 1 Phase	Approx. Shpg. Wt.Lbs.
242-A	13500	**$167.00**	**$202.00**	**$167.00**	210
248-A	17500	**230.00**	**280.00**	**230.00**	255
254-A	23000	**296.00**	(*)	**296.00**	360

*Price on request.

DELTA ELECTRIC LANTERNS

POWERLITE
2-REFLECTOR ELECTRIC LANTERN



Piercing 800-foot spot beam from front, flood-light from top. Two lights under instant finger tip control from same switch.

Operates on standard 6-volt lantern battery, 80 to 100 hours battery life. Rugged, beautiful, efficient.

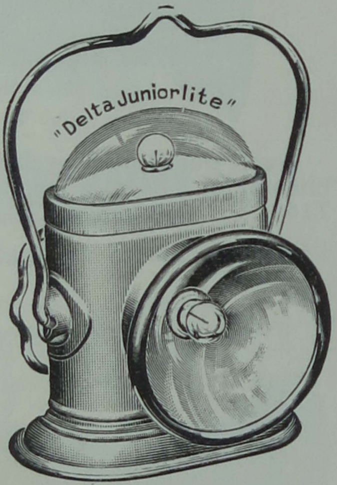
Universal, for every use. Hangs by bail, hooks over nail in wall. Bail reverses for flood light down. Detachable guard.

Packed in individual corrugated cartons; weight each 2½ pounds.

Priced complete less batteries.

Price, Model **A1530** With Lens Guard....each **$3.35**
Price, Model **A1036** Without Guard........each **2.95**

JUNIORLITE 2½-VOLT ELECTRIC LANTERN



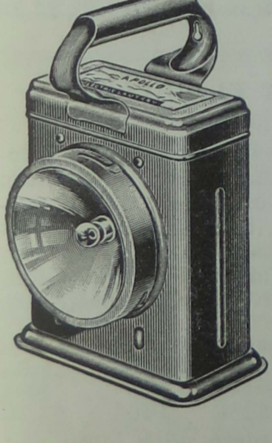
Two reflectors—two lights. 600-foot piercing spot-beam from front, spread-light from top. Either instantly, from single double-acting switch.

Operates on two standard 1¼-inch flashlight cells. A little beauty, in silver color, with big performance. Size 4⅜ inches high, 3½ inches wide.

Packed in individual corrugated cartons; weight 1 pound.

Price, Complete less Batteries................each **$1.59**

DELTA NEW APOLLO LANTERN



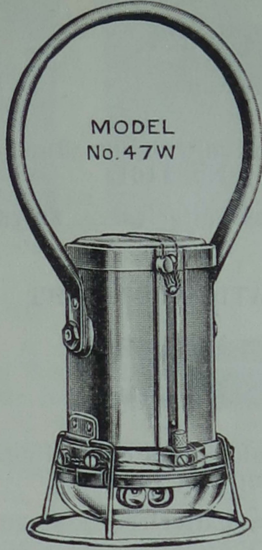
800 foot light beam. Focus easily and instantly adjustable by screw in back, from piercing beam to broad spread light. Comfortable, sturdy, rigid top handle with nail notch to permit hanging lantern up in a safe, convenient position. Switch on back for convenient operation.

Operates on two No. 6 dry cells. One pair of fresh batteries good for 5 months to a year without change. Finished in Delta red enamel. Mazda No. 35 bulb.

Price, New Apollo, less Batteries............each **$1.95**

JUSTRITE ELECTRIC LANTERNS

MINE SAFETY LANTERN



Approved by U. S. Bureau of Mines (Approval No. 1017) and approved by Underwriters' Laboratories, Inc. For use in all places where fire risk is great. "Twin-Bulb" feature reduces the chance of lantern failure.

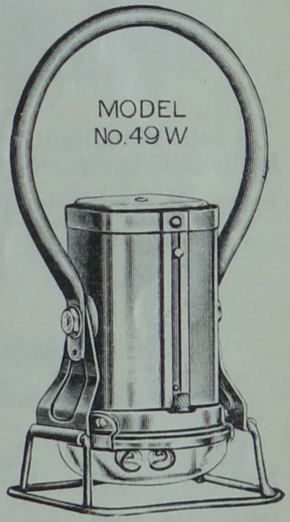
Fixed guard, over reflector and globe, also serves as a base to stand the lantern upright.

Adjustable handle. May be slipped over the arm with the light pointing in the direction desired.

Uses standard 6-volt lantern battery and two Mazda No. 27 bulbs.

No. **47-W**, with Globe and Seals, without bulbs or battery **$4.95**

INDUSTRIAL AND MARINE SAFETY LANTERN



Approved and listed by Underwriters' Laboratories, Inc. For chemical plants, refineries, boats, docks and warehouses where the chance of "lantern failure" must be reduced to a minimum.

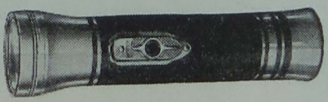
Handle and movable guard-base are both completely adjustable. Two bulbs are available. Only one bulb burns at one time. Either bulb gives both light to all sides and a powerful beam.

Uses standard 6-volt battery and two Mazda No. 27 or No. 502 bulbs.

No. **49-W**, with Globe, but without bulbs or battery **$4.90**

EVEREADY FLASHLIGHTS

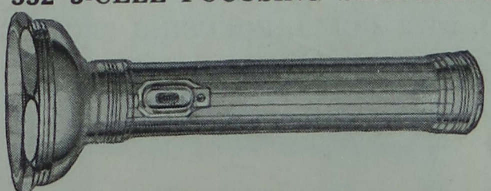
NO. 2251 2-CELL SPOTLIGHT



2-cell Automatic Spotlight. Black and chromium. Uses 2 No. 950 batteries. Lamp No. 1404.

Price, No. **2251** Spotlight, less batteries............**$0.80**

NO. 352 3-CELL FOCUSING SEARCHLIGHT



3-cell Focusing Searchlight, highly polished nickel. Uses 2 No. 950 batteries. Lamp No. 1162.

Price, No. **352** Searchlight, less batteries........**$1.19**

EVEREADY FLASHLIGHTS

NO. 2250 2-CELL FLOODLIGHT

2-cell Floodlight, black and chromium finish. Uses 2 No. 950 batteries. Lamp No. 1161.

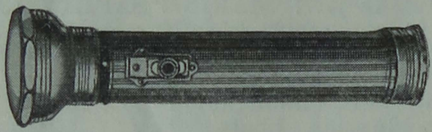
Price, No. **2250** Floodlight, less batteries........**$0.75**

NO. 2351 3-CELL AUTOMATIC SPOTLIGHT

3-cell Automatic Spotlight, black and chromium. Uses 3 No. 950 batteries. Lamp No. 1405.

Price, No. **2351** Spotlight, less batteries........**$1.20**

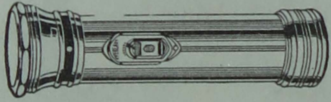
NO. 2633 3-CELL FLOODLIGHT



3-cell Floodlight, chromium. Uses 3 No. 950 batteries. Lamp No. 1127.

Price, No. **2633** Floodlight, less batteries........**$1.20**

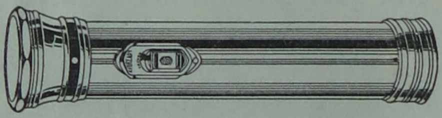
NO. 8251 2-CELL SPOTLIGHT



2-cell Automatic Spotlight, chromium. Uses 2 No. 950 batteries. Lamp No. 1404.

Price, No. **8251** Spotlight, less batteries..........**$1.15**

NO. 8351 3-CELL SPOTLIGHT



3-cell Automatic Spotlight, chromium. Uses 3 No. 950 batteries. Lamp No. 1405.

Price, No. **8351** Spotlight, less batteries..........**$1.35**

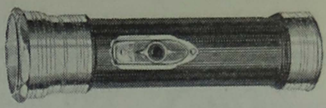
NO. 2672 3-CELL FOCUSING SPOTLIGHT

3-cell Focusing Spotlight. Black and chromium. Uses 3 No. 950 batteries. Lamp No. 1162.

Price, No. **2672** Spotlight, less batteries..........**$1.45**

EVEREADY FLASHLIGHTS

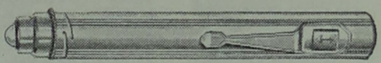
NO. 2671 FOCUSING SPOTLIGHT



2-cell Focusing Spotlight. Black and chromium. Uses 2 No. 950 batteries. Lamp No. 1161.

Price, No. **2671** Spotlight, less batteries..........**$0.78**

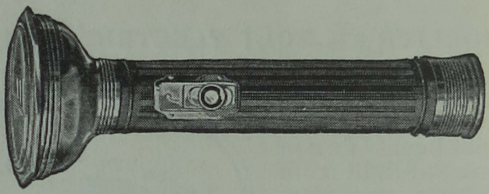
NO. 210 PENLIGHT



Chromium plated, seamless brass tube, sliding pocket clip switch, removable lamp hood. Uses 2 No. 915 batteries. Lamp No. 1152.

Price, No. **210** Penlight, less batteries............**$0.49**

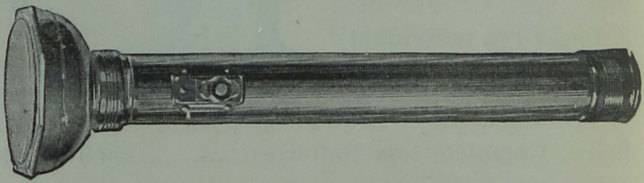
NO. 2642 FOCUSING SEARCHLIGHT



3-cell Focusing Searchlight finished in black and chromium. Uses 3 No. 950 batteries. Lamp No. 1162.

Price, No. **2642** Searchlight, less batteries......**$1.65**

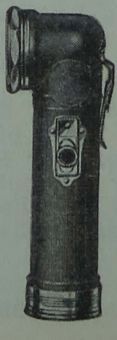
NO. 2645 FOCUSING SEARCHLIGHT



5-cell Focusing Searchlight. Black baked finish on seamless brass tube, chromium fittings. Uses 5 No. 950 batteries. Lamp No. 1125.

Price, No. **2645** Searchlight, less batteries......**$2.25**

OFFICIAL BOY SCOUT FLASHLIGHT



Made of seamless brass tubing, finished in baked khaki with chromium trimmings. Belt, clip slotted for personal initial plate. Die-cast head. Octagonal lens ring. Lamp shock absorber. Ring hanger. Standard Eveready switch. Uses two No. 950 Eveready batteries.

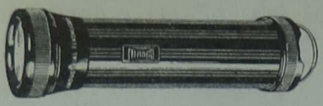
Case and Lamp Less Battery

Cat. No.	Finish	Size Inches	Lamp No.	Price Each
8257	Khaki	7x1½	1404	**$1.15**

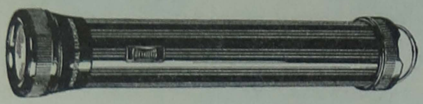
Price, case complete with lamp and 2 No. 950 Unit Cells, **$1.35.**

EVEREADY INDUSTRIAL FLASHLIGHTS

GENERAL PURPOSE TYPES



No. 1251—2-Cell

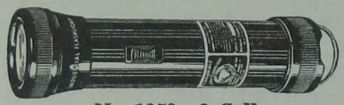


No. 1351—3-Cell

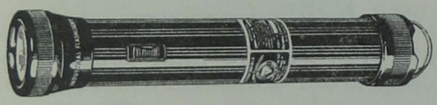
These flashlights are prefocused and never require adjustment by hand. They are of the automatic spotlight type. Outer covering is of heavy, high quality semi-hard rubber, reinforced internally with brass parts. Resistant to deterioration from water, oils, greases, gasoline, alcohol and acids.

	Case and Lamp less Battery			With Battery	
Cat. No.	Description	Lamp No.	Price Each	Unit Cells	Price Complete
1251	2-Cell	1414	$1.95	950	$2.15
1351	3-Cell	1415	2.35	950	2.65

APPROVED SAFETY TYPES



No. 1259—2-Cell

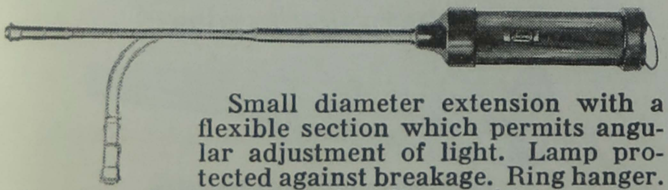


No. 1359—3-Cell

Safety is achieved by the use of a spring loaded contact within the reflector assembly so designed that if the bulb of the lamp is broken, the electrical circuit will be instantly opened before the filament can ignite inflammable or explosive mixtures of gas in the surrounding atmosphere. Outer casing, same as General Purpose type.

	Case and Lamp less Battery			With Battery	
Cat. No.	Description	Lamp No.	Price Each	Unit Cells	Price Complete
1259	2-Cell, Safety	1414	$3.05	950	$3.25
1359	3-Cell, Safety	1415	3.70	950	3.90

FLEXIBLE EXTENSION FLASHLIGHT



Small diameter extension with a flexible section which permits angular adjustment of light. Lamp protected against breakage. Ring hanger. Hand replaceable switch. Heavy, high quality, semi-hard rubber case, reinforced internally with brass parts. Casing will withstand severe abuse from blows or dropping. Resists deterioration from water, oils, greases, gasoline, alcohol, and acids.

Size 19¾x1 11/16 inches, extension 13 inches. Uses 2 No. 950 Eveready batteries; long life Eveready Mazda lamp No. 1191.

Price, No. **3258** (less batteries)............each **$3.40**

EVEREADY FLASHLIGHT BATTERIES

915

950

UNIT CELLS

Penlight Cell

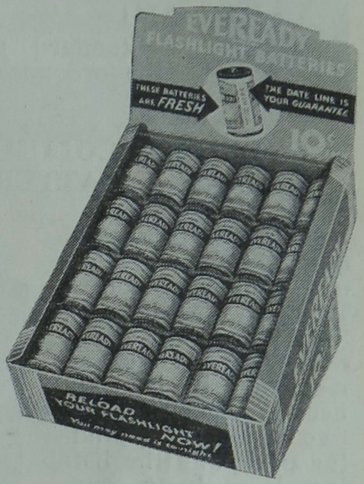
Cat. No.	Size Inches	Unit Pkg.	Price Each
915	1 31/32x 37/64	12	$0.05
	Baby Tubular		
935	2 x1 1/64	12	.10
	Regular Tubular		
950	2 27/64x1 21/64	48	.10

NO. 950 DISPLAY

A counter display of flashlight batteries has been proved over and over again to move batteries fast. Therefore, Eveready No. 950s are packed in this convenient, space-saving counter display carton.

Package contains 48 No. 950 cells.

List Price (48 batteries), **$4.80.**


EVEREADY
FLASHLIGHT BATTERIES
THESE BATTERIES ARE FRESH
THE DATE LINE IS YOUR GUARANTEE
10¢
RELOAD YOUR FLASHLIGHT NOW!
You may need it tonight

EVEREADY
COLUMBIA
LANTERN BATTERY

RAILROAD LANTERN

Cat. No.	No. of Cells	Size Inches	Unit Pkg.	Price Each
409	4	3 27/32x2⅝x2⅝	1	$0.50

EVEREADY DRY BATTERIES

EVEREADY NO. 6 DRY CELL

The Eveready heavy duty cell is made in No. 6 size round jackets. Square cartons can be furnished on No. 6 if desired. This dry cell is designed especially for ignition and is particularly desirable for heavy duty.

Cat. No.	Voltage	Diam. In.	Height In.	Price Each
6	1½	2⅝	6⅝	$0.40

Standard package, 12. Weight, standard package, 27 pounds.

EVEREADY
IGNITOR
DRY CELL
FOR RADIO
IGNITION-BELLS-BUZZERS
ELECTRIC GAMES-TOYS
LANTERNS AND OTHER BATTERY OPERATED DEVICES
No 6
NATIONAL CARBON CO.

EVEREADY
COLUMBIA
GRAY LABEL
LONG LIFE
TELEPHONE CELL
NATIONAL CARBON CO.
MADE IN U.S.A.

EVEREADY "COLUMBIA" GRAY LABEL LONG LIFE TELEPHONE CELL

This dry cell is the original telephone cell greatly improved and is built especially for telephone use. It delivers long service life with uniformity and dependability in the highest degree.

Cat. No.	Voltage	Diam. In.	Hght. In.	Price Each
6	1½	2⅝	6⅝	$0.40

Standard package, 25. Weight, standard package, 57 pounds.

EVEREADY DRY CELL RADIO BATTERY

EVEREADY
RADIO A BATTERY
A

The No. 7111 was especially developed to operate with dry cell vacuum tubes. Specifically designed for Radio "A" battery use.

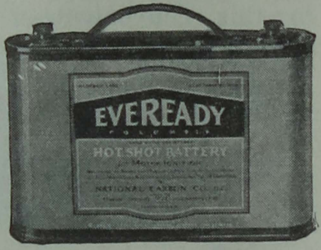
Will be furnished with round jackets and with screw knurls.

Full directions and diagram printed on jacket of each battery.

Cat. No.	Volts	Size In.	Pkg. Wt.	Price Each
7111	1½	2⅝x6⅝	27	**$0.45**

Standard package, 12. Weight, standard package, 27 pounds.

EVEREADY-COLUMBIA HOT SHOT BATTERIES



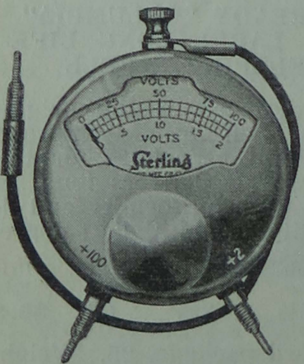
For all purposes requiring four or more dry cells in series, Eveready - Columbia Steel Case Hot Shot Batteries are recommended. It is only necessary to connect two wires to the binding posts and the battery is ready to operate. It is particularly adapted for tractors, small automobiles, motor boats, gas engines, blasting, fire and burglar alarms, gongs, bells, annunciators, signals, etc.

Eveready-Columbia Steel Case Hot Shot Batteries are composed of specially selected cells assembled in a steel container. All internal connections are made with soldered copper strips and the cells are completely insulated against accidental short circuits. Because of their rugged steel construction they are super-durable and impervious to water.

Cat. No.	Volts	Lgth. In.	Width. In.	Hgth. In.	Wt. Lbs. Std. Pkg.	Std. Pkg. Qty.	Price Each
1461	6	10⅜	2¾	7¼	41	4	**$1.85**
1462	6	5 5/16	5 5/16	7¼	41	4	**1.85**
1562	7½	7⅞	5	7¼	52	4	**2.35**
1662	9	7 13/16	5¼	7¼	62	4	**2.75**
141	6	10⅜	2¾	7¼	38	4	**1.60**

For higher voltages or for very heavy duty, several Hot Shot Batteries can be used in series or in multiple.

STERLING POCKET METER



No. 38A Voltmeter

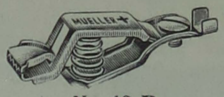
The No. 38A Sterling double scale voltmeter is designed especially for testing the new dry cell batteries used in portable radios. The old style testers are not suitable for testing these delicate batteries.

No. 38A Voltmeter for testing portable radio "B" and "A" batteries. 100 volt scale, 5 volt divisions—2 volt scale, 1/10 volt division.

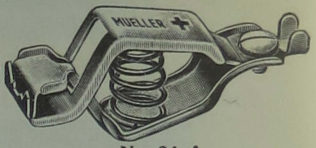
Price **$2.75**

UNIVERSAL CLIPS

Screw or lug connections; no solder required; channel construction throughout; interlocked necks prevent jaw offset; polarity indications + for positive, plain for negative.



No. 48-B

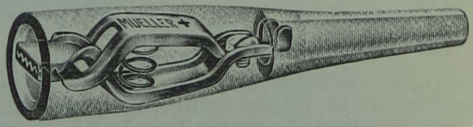


No. 24-A

Cat. No.	Description	Price Each
45	5 amp. Pee Wee, steel, cadmium plated, length 1½ in., jaw spread ⅜ in. For radio and general testing	**$0.05**
85	Crocodile clip with slender, enlongated jaws for getting into tight places in radio test work. Steel, cadmium plated length 2⅜ in.	**.06**
48-B	10 amp. steel, cadmium plated, length 2 in., jaw spread ½ in. For radio, ignition, and similar work	**.05**
27	20 amp. steel, cadmium plated, length 2 5/16 in., jaw spread ⅝ in. For signal, shop, and laboratory test	**.10**
24-A	25 amp. steel, lead plated, length 2⅞ in., jaw spread 1 in. For radio A batteries	**.10**
21-A	50 amp. steel, lead plated, length 4 in., jaw spread 1¼ in. For battery service stations and radio grounds	**.16**
11-A	100 amp., steel, lead coated, length 5 11/16 in., jaw spread 1⅛ in. For battery discharge tests. With lugs for cable	**.60**
45-C	10 amp., solid copper with phosphor bronze spring. For radio and high frequency testing. Entirely non-ferrous. Length 1½ in.	**.08**
48-C	10 amp., solid copper. Same size as 48-B. For testing high capacity automobile generators	**.10**
27-C	40 amp. solid copper. Same size as 27. Teeth mesh on three sides of jaws	**.17**
24	50 amp., solid copper. Same size as 24-A. For general test work	**.20**
21	100 amp., solid copper. Same size as 21-A. Equipped with copper lug for attachment of cable	**.50**
11	200 amp., solid copper. Same size as 11-A. Equipped with copper lug for attachment of cable	**1.00**
33	300 amp., solid copper. Same size as jaw spread 2 in. Equipped with copper lug. Used to ground gasoline tank cars; welding apparatus	**1.80**
82	Needle clip to make connections by piercing insulated wires. Steel, cadmium plated, length 2 in.	**.10**

Packed 10 to a box; 10 boxes to a carton.

RUBBER INSULATORS



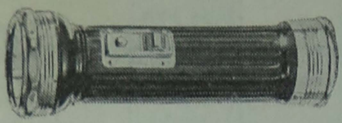
No. 27 Clip with No. 29 Insulator

Cat. No.	For Use with	Price Each
87	No. 85 Crocodile Clip	**$0.05**
47	No. 45 Pee Wee, No. 45-C Clips	**.08**
49	No. 48-B, No. 48-C, No. 82 Clips	**.09**
29	No. 27 and No. 27-C Clips	**.12**
26	No. 24 and 24-A Clips	**.18**
23	No. 21 and No. 21-A Clips	**.33**
13	No. 11 and No. 11-A Clips	**.52**
35	No. 33 Clips	**.80**

Insulators packed 10 to a box (5 red, 5 black).

RAY-O-VAC FLASHLIGHTS

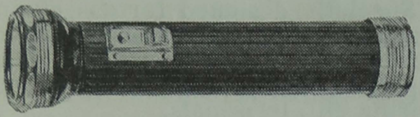
F-22-I 2-CELL FOCUSING SPOTLIGHT



Industrial conventional type 2-cell focusing spotlight, black and chrome finish, crystal lens, silver plated reflector, ribbed barrel, 3-way lock switch, ring hanger. Length 6½ inches; diameter of head, 2¼ inches. Uses 2 No. 2LP cells; Mazda lamp No. 14.

Price, No. **F-22-I**, less cells........................each **$0.69**

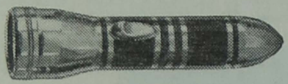
F-32-I 3-CELL FOCUSING SPOTLIGHT



Industrial conventional type 3-cell focusing spotlight, black and chrome finish, crystal clear lens, silver plated reflector, ribbed barrel, ring hanger, 3-way lock switch. Length 8¾ inches; diameter of head, 2¼ inches. Uses 3 No. 2LP cells; Mazda lamp No. 13.

Price, No. **F-32-I**, less cells........................each **$0.89**

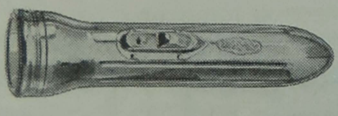
B-22-B JUNIOR PRE-SET SPOTLIGHT



Junior size Pre-set Spotlight, streamlined, black and copper finish, reinforced construction, 350-foot beam, tear-drop switch. Uses 2 No. 1 Unit cells and Mazda lamp No. 233. Length, 6⅜ inches; diameter of head, 1¾ inches.

Price, No. **B-22-B**, less cells........................each **$0.45**

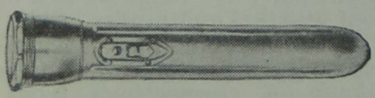
Z-22-S 2-CELL CHROME SPOTLIGHT



2-cell Prefocused Flashlight. A standard size streamline beauty, chrome finished. Has heavy one-piece, chromed embossed barrel, prefocused with silvered reflector to throw a 1000 foot beam. Uses two No. 2LP cells and Mazda lamp No. PR-2. Length $7\frac{9}{16}$ inches; diameter of head, 2¼ inches.

Price, No. **Z-22-S** Spotlight, less cells............**$0.80**

Z-32-S 3-CELL PREFOCUSED SPOTLIGHT

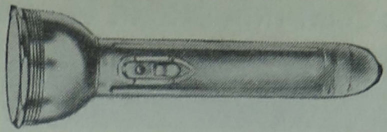


A 3-cell Prefocused Spotlight. Reinforced construction, brilliant chrome, silver reflector, trouble-proof switch. Throws a brilliant beam 1,500 feet. Uses 3 No. 2LP cells and genuine Mazda lamp No. PR-3. Length 9⅞ inches; diameter of head, 2¼ inches.

Price, No. **Z-32-S** Spotlight, less cells............**$1.19**

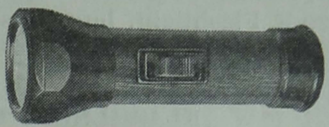
RAY-O-VAC FLASHLIGHTS

Z-33-S 3-CELL PREFOCUSED SEARCHLIGHT



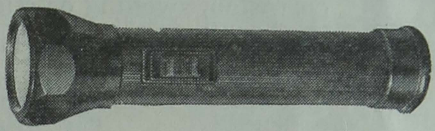
3-cell Searchlight. Streamlined and finished in chrome. Prefocused. Silver plated reflector. 1,500 foot beam. Uses Mazda lamp PR-3, and 3 No. 2LP cells. 10¼ inches long; diameter head 3¼ inches.
Price, No. **Z-33-S** Searchlight, less cells........**$1.59**

G-22 INSULATED INDUSTRIAL FLASHLIGHT



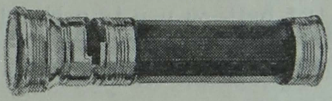
Prefocused Spotlight, 2-cell, black fibre barrel: thoroughly insulated switch; Neoprene end cap and hood; unbreakable lens. Uses Mazda lamp PR-2. Uses 2 No. 2LP cells. 7 inches long; diameter of head, 2¼ inches.
Price, No. **G-22** Flashlight, less cells............**$1.80**

G-32 INSULATED INDUSTRIAL FLASHLIGHT



Prefocused Spotlight, 3-cell, black fibre barrel, thoroughly insulated switch, Neoprene end cap and hood, unbreakable lens. Uses Mazda lamp PR-3. Uses 3 No. 2LP cells. Length, 9¼ inches; diameter of head, 2¼ inches.
Price, No. **G-32** Flashlight, less cells............**$2.20**

2233 2-CELL ROTOMATIC SPOTLIGHT



Industrial Focusing Spotlight with patented Rotomatic, renewable switch. Strong heavy gauge brass barrel, ribbed for sure grip. Black barrel with chromium finished end cap and hood. Heavy, crystal clear lens, shock absorber and ring hanger. Uses Mazda lamp No. 14. Uses 2 No. 2LP cells. 7½ inches long; diameter of head, 2¼ inches.
Price, No. **2233** Spotlight, less cells................**$1.25**

2333 3-CELL ROTOMATIC SPOTLIGHT

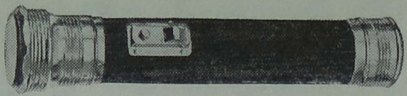
Industrial Focusing Spotlight with patented Rotomatic, renewable switch. Strong heavy gauge brass barrel, ribbed for sure grip. Black barrel with chromium finished end cap and hood. Uses Mazda lamp No. 13. Uses 3 No. 2LP cells. 9⅞ inches long.
Price, No. **2333** Spotlight, less cells................**$1.50**

118-R 2-CELL INDUSTRIAL FLASHLIGHT

2-cell fibre barrel focusing spotlight, for heavy industrial use. 6½ inches long. Uses Mazda lamp No. 14. Uses 2 No. 2LP cells.
Price, No. **118-R** Flashlight, less cells............**$0.95**

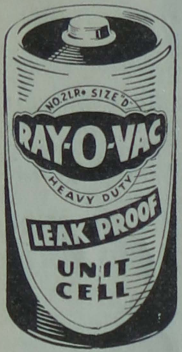
RAY-O-VAC FLASHLIGHTS AND BATTERIES

120-R 3-CELL INDUSTRIAL FLASHLIGHT



3-cell fibre barrel focusing spotlight, ruggedly constructed for industrial use. Chrome end cap and head, beveled plate glass lens, silver plated reflector, ring hanger, standard 3-way switch. 8¾ inches long; diameter head, 2⅛ inches. Uses 3 No. 2LP cells, Mazda lamp No. 13.

Price, No. **120-R** Flashlight, less cells............**$1.20**


NO. 2LP SIZE D
RAY-O-VAC
HEAVY DUTY
LEAK PROOF
UNIT CELL

RAY-O-VAC NO. 2 LEAKPROOF FLASHLIGHT CELLS

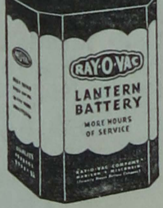
A new value in flashlight cells. The greatest single development in flashlight battery development. Doubly insulated and doubly sealed. Completely armored—top sides and bottom. Guaranteed not to damage any flashlight through corrosion, swelling or sticking in the barrel.

Unit Cells

Cat. No.	Description	Unit Pkg.	Std. Pkg.	Price Each
1	1-Cell Baby 1x1⅞	12	120	**$0.10**
2LP	1-Cell Regular 1 5/16x2⅜	48	480	**.10**
7R	1-Cell Penlite 9/16x1 15/16	12	12	**.05**
	Tubular Type Batteries			
121	2-Cell Baby 1x3¾	6	60	**.20**
221	2-Cell Regular 1 5/16x4 11/16	10	120	**.20**
231	3-Cell Regular 1 5/16x7⅛	12	120	**.30**

For a No. 121 battery use two No. 1 cells.
For a No. 221 battery use two No. 2LP cells.
For a No. 231 battery use three No. 2LP cells.

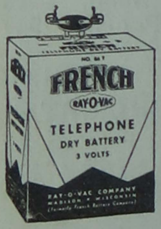
RAY-O-VAC LANTERN BATTERY


RAY-O-VAC
LANTERN BATTERY
MORE HOURS OF SERVICE

For railroad service, bicycle light service, and truck danger flares. Technical and service tests by operating officials of railroads which have standardized with electric lanterns prove that Ray-O-Vac lantern battery No. 941 offers greater dependability and economy through longer life in both active and idle service. Size, 2⅝x2⅝x4 inches.

Price, No. **941** 4-Cell Lantern Battery....each **$0.50**
Unit package, 6; standard package, 6.

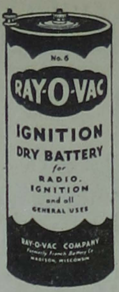
FRENCH UNIT TYPE PLUG-IN TELEPHONE BATTERIES


FRENCH
RAY-O-VAC
TELEPHONE DRY BATTERY
3 VOLTS

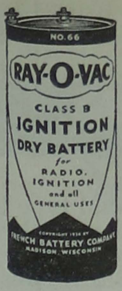
Ray-O-Vac's French Unit Type Plug-in batteries, 3 or 4½ volts housed in a single compact carton, are convenient and economical. Supplied in mailing cartons ready to be sent to the subscriber who then easily makes the change himself by merely withdrawing the plug and inserting it in a fresh battery.

Cat. No	Volts	Size, Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
86T	3	3⅞x2⅝x5⅜	25	69	**$0.80**
89T	4½	3⅞x3⅞x5⅜	25	102	**1.20**

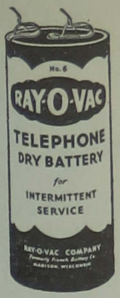
RAY-O-VAC IGNITION BATTERIES


No. 6
RAY-O-VAC
IGNITION DRY BATTERY
for RADIO. IGNITION and all GENERAL USES
RAY-O-VAC COMPANY

No. 6
Ignition


No. 66
RAY-O-VAC
CLASS B
IGNITION DRY BATTERY
for RADIO. IGNITION and all GENERAL USES
FRENCH BATTERY COMPANY
MADISON, WISCONSIN

No. 66
Class B


No. 6
RAY-O-VAC
TELEPHONE DRY BATTERY
for INTERMITTENT SERVICE
RAY-O-VAC COMPANY

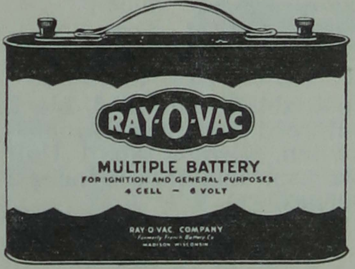
No. 6
Telephone

Through correct balancing of chemical elements, Ray-O-Vac has perfected this cell which far surpasses U.S. Government standards in performance and life. Specially designed for gas engines, tractors, motor boats, lighting, buzzer, signal and other ignition circuits. For marine use, cell container is specially paraffined to make it waterproof. Screw post or spring clip terminals.

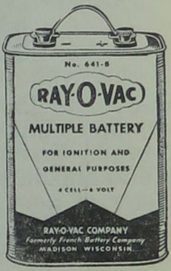
No. 66 1½-volt Class B battery designed for all-round use. Priced for volume sales, but will be found to give service comparable to many higher-priced batteries.

Cat. No.	Description	Std. Pkg.	Pkg. Wt.	Price Each
6	Ignition (Class A)	25	58½	**$0.40**
6	R.R. Industrial (Class A)	25	55	**.45**
6	Telephone (Class A)	25	59	**.40**
66	Ignition (Class B)	25	57	**.25**

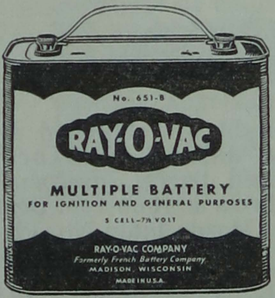
MULTIPLE IGNITION BATTERIES


RAY-O-VAC
MULTIPLE BATTERY
FOR IGNITION AND GENERAL PURPOSES
4 CELL — 6 VOLT
RAY-O-VAC COMPANY

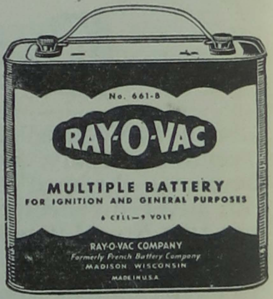
No. 641, 6 Volt


No. 641-B
RAY-O-VAC
MULTIPLE BATTERY
FOR IGNITION AND GENERAL PURPOSES
RAY-O-VAC COMPANY
MADISON WISCONSIN

No. 641-B, 6 Volt


No. 651-B
RAY-O-VAC
MULTIPLE BATTERY
FOR IGNITION AND GENERAL PURPOSES
RAY-O-VAC COMPANY
MADISON, WISCONSIN
MADE IN U.S.A.

No. 651-B, 7½ Volt


No. 661-B
RAY-O-VAC
MULTIPLE BATTERY
FOR IGNITION AND GENERAL PURPOSES
RAY-O-VAC COMPANY
MADISON WISCONSIN
MADE IN U.S.A.

No. 661-B, 9 Volt

Available in four-, five-, and six-cell series. Built in waterproof all-steel containers. Cells completely insulated, and connected by specially-designed spring brass strip. This special construction prevents breakage of connections from vibration. Cushioning bed of asphalt top and bottom further protects cells from damage.

Cat. No.	No. of Cells	Voltage	Size, Inches Lgth.	Size, Inches Wdth.	Size, Inches Hght.	Std. Pkg.	Pkg. Wt.	Price Each
641	4	6	10⅜	2¾	7½	6	67	**$1.85**
641-B	4	6	5¼	5¼	7½	6	65	**1.85**
651-B	5	7½	7 13/16	5¼	7½	4	56	**2.35**
661-B	6	9	7 13/16	5¼	7½	4	65	**2.75**

SIMPLIFYING THE NEW WIRE SITUATION

Short Cuts for Determining Permissible Wire Sizes and Conduit Fills Under the New Rules in 1940 Edition of National Electrical Code

By H. R. STEVENSON
Assistant Superintendent, Customers' Service Division, Detroit Edison Company,
Detroit, Michigan

A few cardinal points which, if remembered, will do much toward clarifying the new wire and conduit situation:

FIRST: Wiring now is divided into two classes:
1. New Work.
2. Rewiring Work.

SECOND: That any type of wire may be used for rewiring work, but that the use of types RPT, RU, and SN is limited to rewiring work only.

THIRD: The current-carrying capacity of a wire will vary with:
1. The type of insulation.
2. The total number of wires with which it is used, grouped in a conduit or cable.
3. The ambient temperatures of the location in which it is installed.
4. In the case of various types of insulations grouped together, all wires will take the rated current-carrying capacity comparable with that of the wire with the lowest grade insulation in the group.
5. In the case of a bare neutral, the bare wire will take the allowable current carrying capacity comparable with that of the insulated wires with which it is used.
6. If a neutral wire carries only the unbalanced current of a normally balanced circuit, that it need not be counted as one of the wires in a conduit or cable in determining the allowable carrying capacity of the rest of the wires.

FOURTH: That for ordinary usage the allowable conduit fill varies according to the class of work, as follows:
1. For new work 40%
2. For rewiring work 50%

FIFTH: That if the allowable current carrying capacity of a wire does not correspond with the size or rating of a standard overcurrent device, that the next larger size or rating may be used, provided it does not exceed 150 per cent of the allowable current carrying capacity of the conductor.

If the essence of these five items is absorbed and remembered, and then used in conjunction with the Tables presented, little difficulty will be encountered in proper application of the new wires.

The Tables may be used equally well for either new or rewiring work, and the following examples will show how they may be applied. All of the new insulations are not available in all sizes, and the Tables have been so arranged that this factor has been taken care of automatically.

New Work

In the case of new work it usually is necessary to start with a given load, and from that determine the required wire and conduit size.

First Example. Assume a feeder which must supply 24 Kw. at 120/240 volts, 3 wire, single phase, to a lighting branch circuit panelboard. This represents, of course, a load of 100 amperes per leg.

Reference then is made to **Table A**, which gives the allowable current-carrying capacity, in amperes, of various types of conductors, and for varying numbers of conductors in the raceway or cable. For the example under consideration, with three wires in the raceway, the second column of **Table A** will be used.

From this column a proper wire size may be chosen, remembering that RPT, RU, and SN are limited in use to rewiring only. First assume a choice of Type R wire, and from the table:

> 100 amperes will require the use of #0 (105 amperes).

The system then will consist of 3—#0 Type R conductors, and to arrive at the proper size raceway to accommodate this system, reference next is made to **Table B.** This table gives the over-all circular mil area, including insulation, of the various sizes and types of conductors, and for any number of them, from 1 through 9, grouped together. From **Table B:**

> 3—#0 Type R conductors have an area of 1,190,700 circular mils.

To determine the size conduit necessary for this system of wires, reference next is made to **Table C,** which gives the amount of circular mil area which may be filled with wire, for conduit sizes through 3½", and for either new or rewiring work. From **Table C:**

> 2" conduit with a permissible fill of 1,710,000 circular mils, on new work, must be used for the 3—#0 Type R conductors which have a total circular mill area of 1,190,700.

As a further exercise of the Tables, next try Type RP conductors, instead of Type R, from the same column of **Table A.** Reference to the schedule of Conductor Insulations given below **Table A** will show that Type RP has the same overall dimensions as Type R, but it will be remembered that its allowable current carrying capacity is greater.

From **Table A:**

> 100 amperes will require the use of a #1 Type RP conductor (110 amperes).

And then from **Table B:**

> 3—#1 Type RP conductors have an area of 1,044,300 circular mils.

And from **Table C:**

> 1,044,300 circular mils still will require the use of a 2" conduit with a permissible fill of 1,710,000.

Then Type RH wire, which still has a greater allowable current carrying capacity, and is available in all sizes. From **Table A:**

> 100 amperes will require the use of a #2 Type RH conductor (115 amperes).

From **Table B:**

> 3—#2 Type RH conductors have an area of 811,200 circular mils.

SIMPLIFYING THE NEW WIRE SITUATION (Continued)

From **Table C:**

It will be seen that an advantage is gained with the use of the Type RH conductors, since the 811,200 circular mils may be accommodated by a 1½" conduit with a permissible fill of 1,036,000 circular mils.

Second Example. For a somewhat more complicated problem assume a service, which is to serve a load of 36 Kw. of three phase power, and 18 Kw. of single phase 120 volt lighting, all to be fed from, and balanced as nearly as possible on a three phase four wire wye system at 120/208 volts. Under this condition the 36 Kw. of 3ϕ power at 208 volts will represent 100 amperes per leg, and the 18 Kw. of lighting, balanced on the 3ϕ system, will represent 50 amperes per leg. Each leg of the 3ϕ system will then be required to carry 150 amperes. The neutral conductor, in this instance, carries only the unbalanced current of the lighting, which is balanced on the 3ϕ system. It must have a 50 ampere carrying capacity for maximum unbalance, may be bare since it is in a service, and need not be counted as one of the wires in the raceway when determining from which column of **Table A** to take allowable current carrying capacities. There are then, to be a total of four wires in the service, but since the neutral need not be counted, current values are again taken from the second column of **Table A.** Assuming use of Type RH wire:

150 amperes will require the use of a #0 Type RH conductor (151 amperes), and the 50 amperes will require the use of a #6 bare conductor (65 amperes).

And from **Table B:**

3—#0 Type RH have an area of	1,190,700 CM
1—#6 Bare has an area of..........	26,244 CM
Total conductor area	1,216,944 CM

From **Table C:**

1,216,944 circular mils will require the use of a 2" conduit, with a permissible fill for new work of 1,710,000 CM.

By the same procedure it can be determined that the use of Type R wire would require 2½" conduit, but that Type RP would only require 2".

Rewiring Work

In the case of rewiring work it is usual to encounter the case of a length of conduit, through which it is desired to pull new and larger conductors for the purpose of serving increased loads. Two examples of the use of the Tables should suffice to show their application to rewiring work.

First Example. Assume the case of a present length of 1½" conduit, containing 3—#1 Type R conductors. On a single phase, 120/240 volt, 3 wire system, this represents the possibility of supplying a 24 Kw. load, and it is desired to rewire to supply just as much load as can possibly be served through the 1½" raceway.

The use of the Tables is now reversed, and as a first step, the maximum permissible fill for 1½" conduit, for rewiring work, is determined from **Table C:**

Permissible fill, rewiring work, for 1½" conduit is 1,295,000 circular mils.

Then from **Table B:**

Determine the largest size of conductors (there will be three of them) that can be accommodated by the 1,295,000 circular mil area available. Going through **Table B,** and recalling that any type wire may be used for rewiring work, it will be found that 3—#3/0 Type SN conductors, with a total overall area of 1,205,868 circular mils, can be accommodated by the 1½" conduit.

And from **Table A:**

The second column of Table A shows an allowable current carrying capacity for #3/0 Type SN of 166 amperes.

This 166 amperes then represents the possibility of supplying a 40 Kw. single phase load through the 1½" conduit, as against the original 24.

Second Example. As a second example consider the case of a length of ½" final branch circuit conduit, containing 4—#14 Type R conductors supplying two 15 ampere circuits with a total maximum load of 3,600 watts at 120/240 volts. It is desired to increase the number of circuits to four, and to supply as much load as possible.

From **Table C:**

Permissible fill for ½" conduit, on rewiring work, is 193,400 circular mils.

From **Table B:**

Since it is desired to have four circuits, there will be 4 circuit wires and one common neutral. The neutral will have to have a carrying capacity equivalent to the maximum unbalanced load, or twice the capacity of one circuit wire. Glancing through Table B it will be found that perhaps 4—#12 Type SN conductors, with a total circular mil area of 86,436, will come close to a solution of the problem. From the third column of Table A it will be found that this wire has an allowable carrying capacity of 18.4 amperes. The neutral will then have to have a capacity of at least 36.4 amperes. The nearest size to this, from Table A, is #6 Type SN, with a carrying capacity of 43.2 amperes. From Table B the total circular mil area of the five wires is then:

4—#12 Type SN	86,436
1—# 6 Type SN	98,596
Total	185,032

Since 193,400 circular mils is the permissible fill that is being worked toward, it is apparent that ½" conduit will accommodate the 4—#12 and 1— #6 Type SN conductors.

From **Table A:**

The allowable current carrying capacity of #12 Type SN, determined from the third column of Table A as 18.4 amperes, represents on a 120/240 volt system, single phase, a four circuit load of 8,832 watts that can be served, as against the original of 3,600 watts, through the ½" conduit.

This last example probably represents the most complicated type of problem that will be encountered in the ordinary run of work. Continued use of the Tables will rapidly increase the ease with which they may be applied to particular problems.

TABLE B—AREAS OF CONDUCTORS IN CIRCULAR MILS (Including Insulation)

NUMBER OF CONDUCTORS

No.	Size and Insulation	1	2	3	4	5	6	7	8	9
14	R-RP & RH-RW	40,000	80,000	120,000	160,000	200,000	240,000	280,000	320,000	360,000
	RHT-RPT	26,244	52,488	78,732	104,976	131,220	157,464	183,708	209,952	236,196
	RU-SN	16,900	33,800	50,700	67,600	84,500	101,400	118,300	135,200	152,100
12	R-RP & RH-RW	48,400	96,800	145,200	193,600	242,000	290,400	338,800	387,200	435,600
	RHT-RPT	32,041	64,082	96,123	128,164	160,205	192,246	224,287	256,328	288,369
	RU-SN	21,609	43,218	64,827	86,436	108,045	129,654	151,263	172,872	194,481
10	R-RP & RH-RW	57,600	115,200	172,800	230,400	288,000	345,600	403,200	460,800	518,400
	RHT-RPT	40,000	80,000	120,000	160,000	200,000	240,000	280,000	320,000	360,000
	RU-SN	28,224	56,448	84,672	112,896	141,120	169,344	197,568	225,792	254,016
8	R-RP & RH-RW	90,000	180,000	270,000	360,000	450,000	540,000	630,000	720,000	810,000
	RHT	68,121	136,242	204,363	272,484	340,605	408,726	476,847	544,968	613,089
	SN	51,529	103,058	154,587	206,116	257,645	309,174	360,703	412,232	463,761
	Bare	16,512	33,024	49,536	66,048	82,560	99,072	115,584	132,096	148,608
6	R-RP & RH-RW	168,100	336,200	504,300	672,400	840,500	1,008,600	1,176,700	1,344,800	1,512,900
	SN	98,596	197,192	295,788	394,384	492,980	591,576	690,172	788,768	887,364
	Bare	26,244	52,488	78,732	104,976	131,220	157,464	183,708	209,952	236,196
4	R-RP & RH-RW	202,500	405,000	607,500	810,000	1,012,500	1,215,000	1,417,500	1,620,000	1,822,500
	SN	131,769	263,538	395,307	527,076	658,845	790,614	922,383	1,054,152	1,185,921
	Bare	41,738	83,476	125,214	166,952	208,690	250,428	292,166	333,904	375,642
2	R-RP & RH-RW	270,400	540,800	811,200	1,081,600	1,352,000	1,622,400	1,892,800	2,163,200	2,433,600
	SN	178,929	357,858	536,787	715,716	894,645	1,073,574	1,252,503	1,431,432	1,610,361
	Bare	66,358	132,716	199,074	265,432	331,790	398,148	464,506	530,864	597,222
1	R-RP & RH-RW	348,100	696,200	1,044,300	1,392,400	1,740,500	2,088,600	2,436,700	2,784,800	3,132,900
	SN	246,016	492,032	738,048	984,064	1,230,080	1,476,096	1,722,112	1,968,128	2,214,144
	Bare	83,694	167,388	251,082	334,776	418,470	502,164	585,858	669,552	753,246
0	R-RP & RH-RW	396,900	793,800	1,190,700	1,587,600	1,984,500	2,381,400	2,778,300	3,175,200	3,572,100
	SN	288,369	576,738	865,107	1,153,476	1,441,845	1,730,214	2,018,583	2,306,952	2,595,321
	Bare	105,625	211,250	316,875	422,500	528,125	633,750	739,375	845,000	950,625
2/0	R-RP & RH-RW	448,900	897,800	1,346,700	1,795,600	2,244,500	2,693,400	3,142,300	3,591,200	4,040,100
	SN	339,889	679,778	1,019,667	1,359,556	1,699,445	2,039,334	2,379,223	2,719,112	3,059,001
	Bare	133,079	266,158	399,237	532,316	665,395	798,474	931,553	1,064,632	1,197,711
3/0	R-RP & RH-RW	518,400	1,036,800	1,555,200	2,073,600	2,592,000	3,110,400	3,628,800	4,147,200	4,665,600
	SN	401,956	803,912	1,205,868	1,607,824	2,009,780	2,411,736	2,813,692	3,215,648	3,617,604
	Bare	167,772	335,544	503,316	671,088	838,860	1,006,632	1,174,404	1,342,176	1,509,948
4/0	R-RP & RH-RW	608,400	1,216,800	1,825,200	2,433,600	3,042,000	3,650,400	4,258,800	4,867,200	5,475,600
	SN	478,864	957,728	1,436,592	1,915,456	2,394,320	2,873,184	3,352,048	3,830,912	4,309,776
	Bare	211,600	423,200	634,800	846,400	1,058,000	1,269,600	1,481,200	1,692,800	1,904,400
250 M	R-RP & RH-RW	739,600	1,479,200	2,218,800	2,958,400	3,698,000	4,437,600	5,177,200	5,916,800	6,656,400
	Bare	250,000	500,000	750,000	1,000,000	1,250,000	1,500,000	1,750,000	2,000,000	2,250,000
300 M	R-RP & RH-RW	846,400	1,692,800	2,539,200	3,385,600	4,232,000	5,078,400	5,924,800	6,771,200	7,617,600
	Bare	300,000	600,000	900,000	1,200,000	1,500,000	1,800,000	2,100,000	2,400,000	2,700,000
350 M	R-RP & RH-RW	960,400	1,920,800	2,881,200	3,841,600	4,802,000	5,762,400	6,722,800	7,683,200	8,643,600
	Bare	350,000	700,000	1,050,000	1,400,000	1,750,000	2,100,000	2,450,000	2,800,000	3,150,000
400 M	R-RP & RH-RW	1,060,900	2,121,800	3,182,700	4,243,600	5,304,500	6,365,400	7,426,300	8,487,200	9,548,100
	Bare	400,000	800,000	1,200,000	1,600,000	200,00,000	2,400,000	2,800,000	3,200,000	3,600,000
500 M	R-RP & RH-RW	1,254,400	2,508,800	3,763,200	5,017,600	6,272,000	7,526,400	8,780,800	10,035,200	11,289,600
	Bare	500,000	1,000,000	1,500,000	2,000,000	2,500,000	3,000,000	3,500,000	4,000,000	4,500,000

This table gives the total area in circular mils of 1 to 9 conductors for various types of insulations.

TABLE C—PERMISSIBLE FILLS OF CONDUITS IN CIRCULAR MILS

Per Cent Fill	½″	¾″	1″	1¼″	1½″	2″	2½″	3″	3½″
Rewiring 50%	193,400	339,250	549,500	951,500	1,295,000	2,137,500	3,050,000	4,705,000	6,300,000
New Work 40%	154,720	271,400	439,600	761,200	1,036,000	1,710,000	2,440,000	3,764,000	5,040,000

This table gives the maximum circular mil area which may be occupied by conductors in various sizes of conduits. On rewiring jobs any type of insulation may be used. RPT, RU & SN are not permitted on new work.

TABLE A—CARRYING CAPACITY OF CONDUCTORS—BASED ON 30° C. (86° F.) AMBIENT

	Single Conductor in free air — isolated			1-2-3 Conductors in one conduit or cable* (100%)			4-5-6 Conductors in one conduit or cable (80%)			7-8-9 Conductors in one conduit or cable (70%)		
	R-RW	RP-RPT RU-SN	RHT RH	R-RW	RP-RPT RU-SN	RHT RH	R-RW	RP-RPT RU-SN	RHT RH	R-RW	RP-RPT RU-SN	RHT RH
				MAXIMUM TEMPERATURE ALLOWABLE								
Wire Size	50C-122F	60C-140F	75C-167F	50C-122F	60C-140F	75C-167F	50C-122F	60C-140F	75C-167F	50C-122F	60C-140F	75C-167F
14	20	24	29	15	18	22	12.0	14.4	17.6	10.5	12.6	15.4
12	26	31	37	20	23	27	16.0	18.4	21.6	14.0	16.1	18.9
10	35	42	50	25	31	37	20.0	24.8	29.6	17.5	21.7	25.9
8	48	58	69	35	41	49	28.0	32.8	39.2	24.5	28.7	34.3
6	65	78	94	45	54	65	36.0	43.2	52.0	31.5	37.8	45.5
4	87	105	125	60	72	86	48.0	57.6	68.8	42.0	50.4	60.2
2	118	142	170	80	96	115	64.0	76.8	92.0	56.0	67.2	80.5
1	136	164	196	91	110	131	72.8	88.0	104.8	63.7	77.0	91.7
0	160	193	230	105	127	151	84.0	101.6	120.8	73.5	88.9	105.7
00	185	223	267	120	145	173	96.0	116.0	138.4	84.0	101.5	121.1
000	215	259	310	138	166	199	110.4	132.8	159.2	96.6	116.2	139.3
0,000	248	298	358	160	193	230	128.0	154.4	184.0	112.0	135.1	161.0
250,000	280	338	403	177	213	255	141.6	170.4	204.0	123.9	149.1	178.5
300,000	310	373	446	198	238	285	158.4	190.4	228.0	138.6	166.6	199.5
350,000	350	421	504	216	260	311	172.8	208.8	248.8	151.2	182.0	217.7
400,000	380	457	547	233	281	336	186.4	224.8	268.8	163.1	196.7	235.2
500,000	430	517	620	265	319	382	212.0	255.2	305.6	185.5	223.3	267.4

This table gives the carrying capacity of a conductor based on the type of insulation and on the number of conductors in the conduit or cable. *Use this column for 3-phase 4-wire systems, as the neutral is not counted as a current-carrying wire.

Sizes available: R-RP-RH-RW, all sizes; RHT, 14 to 8 inclusive; RPT, 14 to 10 inclusive; RU, 14 to 10 inclusive; SN, 14 to 4/0 inclusive.

ALLOWABLE CONDUIT SIZES

TABLE 7 — NUMBER OF CONDUCTORS IN CONDUIT OR TUBING

Synthetic, Type SN and Type RU, 600 Volts One to Nine Conductors

For rewiring in existing raceways as provided in sub-paragraph e of section 3005, National Electrical Code.

Size of Conductor	Number of Conductors in One Conduit or Tubing								
	1	2	3	4	5	6	7	8	9
14	½	½	½	½	½	½	½	½	½
12	½	½	½	½	½	½	½	½	¾
10	½	½	½	½	½	½	¾	¾	¾
8	½	½	½	¾	¾	¾	1	1	1
6	½	¾	¾	1	1	1¼	1¼	1¼	1¼
5	½	¾	¾	1	1¼	1¼	1¼	1¼	1½
4	½	¾	1	1	1¼	1¼	1¼	1½	1½
3	½	1	1	1¼	1¼	1¼	1½	1½	2
2	½	1	1	1¼	1¼	1½	1½	2	2
1	¾	1¼	1¼	1½	1½	2	2	2	2½
0	¾	1¼	1¼	1½	2	2	2	2½	2½
00	¾	1¼	1½	2	2	2	2½	2½	2½
000	¾	1½	1½	2	2	2½	2½	3	3
0000	1	1½	2	2	2½	2½	3	3	3

Note: Type SN conductors recognized in sizes No. 14 to No. 0000; Type RU conductors recognized in sizes No. 14 to No. 10.

Type SN conductors without an outer covering and Type RU conductors with an outer covering have the same overall diameter.

More Than Three Conductors in a Raceway

Table 1 gives the allowable current-carrying capacity for not more than three conductors in a raceway or cable. If the number of conductors in a raceway or cable is from 4 to 6, the allowable current-carrying capacity of each conductor shall be reduced to 80 per cent of the values in Table 1. If the number of conductors in a raceway or cable is from 7 to 9, the allowable current-carrying capacity of each conductor shall be reduced to 70 per cent of the values in Table 1.

TABLE 9 — NUMBER OF CONDUCTORS IN CONDUIT OR TUBING

More Than Nine Conductors

Rubber-Covered Types R, RW, RP, and RH — 600V.

***When Specifically Permitted by This Code (See sections 3466 and 3487, National Electrical Code.)**

Size of Conductor	Maximum Number of Conductors in Conduit or Tubing						
	Inch ¾	Inch 1	Inch 1¼	Inch 1½	Inch 2	Inch 2½	Inch 3
18	13	22	38	53	87	124	191
16	11	19	33	45	74	106	163
14		11	19	26	43	61	95
12			15	21	34	50	77
10			12	16	27	38	60
8				13	22	31	49
6						14	22

*More than nine conductors are permitted in a single conduit for conductors between a motor and its controller; stage pocket and border circuits, section 5211; sign flashers, section 6021-d; elevator control conductors, section 6214; signal and control circuits, sections 8006-a-1 and 8012-b-2.

ALLOWABLE CURRENT-CARRYING CAPACITIES OF CONDUCTORS IN AMPERES

TABLE 1

For Not More Than Three Conductors in Raceway or Cable
(Based on Room Temperature of 30° C. or 86° F.)

Size AWG or MCM	Rubber Type RW Type R	Synthetic Type SN Type RU Rubber Type RPT Type RP	Rubber Type RHT Type RH	Paper Synthetic Type SNA Asbestos Var-Cam Type AVB Var-Cam Type V	Asbestos Var-Cam Type AVA	Impregnated Asbestos Type AI	Asbestos Type A
14	15	18	22	23	28	29	32
12	20	23	27	29	36	38	42
10	25	31	37	38	47	49	54
8	35	41	49	50	60	63	71
6	45	54	65	68	80	85	95
5	52	63	75	78	94	99	110
4	60	72	86	88	107	114	122
3	69	83	99	104	121	131	145
2	80	96	115	118	137	147	163
1	91	110	131	138	161	172	188
0	105	127	151	157	190	202	223
00	120	145	173	184	217	230	249
000	138	166	199	209	243	265	284
0000	160	193	230	237	275	308	340
250	177	213	255	272	315	334	372
300	198	238	285	299	347	380	415
350	216	260	311	325	392	419	462
400	233	281	336	361	418	450	488
500	265	319	382	404	468	498	554
600	293	353	422	453	525	543	612
700	320	385	461	488	562	598	668
750	330	398	475	502	582	621	690
800	340	410	490	514	600	641	720
900	360	434	519	556	....	....	....
1,000	377	455	543	583	681	730	811
1,250	409	493	589	643	....	....	....
1,500	434	522	625	698	784	....	....
1,750	451	544	650	733	....	....	....
2,000	463	558	666	774	839	....	....

CORRECTION FACTOR FOR ROOM TEMPERATURES OVER 30° C.

C.	F.							
40	104	.71	.82	.88	.90	.94	.95	....
45	113	.50	.71	.82	....	....	....	....
50	122	.00	.58	.75	.80	.87	.89	....
55	131	....	.41	.67	....	....	....	....
60	140	....	.00	.58	.67	.79	.83	.97
70	158	....	....	.35	.52	.71	.76	.93
75	167	....	....	.00	....	....	....	....
80	176	....	....	....	.30	.61	.69	.89
90	194	....	....	....	....	.50	.61	.86
100	212	....	....	....	....	....	.51	.82
120	248	....	....	....	....	....	....	.72
140	284	....	....	....	....	....	....	.63

Table 1 of the 1940 code gives current-carrying capacities for not more than three conductors in a raceway. If the raceway contains from 4 to 6 conductors, the values in the table are reduced to 80%. If the raceway contains from 7 to 9 conductors, the values in the table are reduced to 70%.

COMPARISON OF CURRENT-CARRYING CAPACITIES IN AMPERES

1937 and 1940 CODES
Conductors in Raceways

Type AWG or MCM	Type R 1937 Code	Type R 1940 Code	Type RH 1940 Code
14	15	15	22
12	20	20	27
10	25	25	37
8	35	35	49
6	50	45	65
4	70	60	86
2	90	80	115
1	100	91	131
0	125	105	151
00	150	120	173
000	175	138	199
0000	225	160	230
250	250	177	255
300	275	198	285
350	300	216	311
400	325	233	336
500	400	265	382
600	450	293	422
700	500	320	461
750	525	330	475
800	550	340	490
900	600	360	519
1,000	650	377	543
1,250	750	409	589
1,500	850	434	625
1,750	950	451	650
2,000	1,050	463	666

PER CENT AREA OF CONDUIT OR TUBING

See Notes	Number of Conductors				
	1	2	3	4	Over 4
★	53	31	43	40	40
●	55	30	40	38	35
■	60	40	50	50	50

★Conductors (not lead-covered).

●Lead-covered conductors.

■For rewiring existing raceways with conductors of thinner insulation, as provided in 3005-d and e.

ALLOWABLE CONDUIT SIZES

TABLE 4 — NUMBER OF CONDUCTORS IN CONDUIT OR TUBING

One to Nine Conductors Rubber-Covered — Types R, RW, RP, RH, and **RHT — 600 V.

For more than nine conductors see Table 9.
(See sections 3032, 3466 and 3487,
National Electrical Code.)

Size of Conductor	Number of Conductors in One Conduit or Tubing								
	1	2	3	4	5	6	7	8	9
No. 18	½	½	½	½	½	½	½	½	¾
16	½	½	½	½	½	½	¾	¾	¾
14	½	½	½	½	¾	¾	¾	1	1
12	½	½	½	¾	¾	1	1	1	1¼
10	½	¾	¾	¾	1	1	1¼	1¼	1¼
8	½	¾	*1	1	1¼	1¼	1¼	1¼	1½
6	½	1	*1¼	1¼	1½	1½	2	2	2
5	¾	1¼	1¼	1¼	1½	2	2	2	2
4	¾	1¼	*1¼	1½	2	2	2	2	2½
3	¾	1¼	1¼	1½	2	2	2	2½	2½
2	¾	1¼	*1½	1½	2	2	2½	2½	2½
1	¾	1½	1½	2	2	2½	2½	3	3
0	1	1½	2	2	2½	2½	3	3	3
00	1	2	2	2½	2½	3	3	3	3½
000	1	2	2	2½	3	3	3	3½	3½
0000	1¼	2	2½	2½	3	3	3½	3½	4
250000	1¼	2½	2½	3	3	3½			
300000	1¼	2½	3	3	3½	3½			
350000	1¼	2½	3	3½	3½	4			
400000	1¼	3	3	3½	4	4			
450000	1½	3	3	3½	4	4½			
500000	1½	3	3	3½	4	4½			
550000	1½	3	3½	4	4½	5			
600000	2	3	3½	4	4½	5			
650000	2	3½	3½	4					
700000	2	3½	3½	4½					
750000	2	3½	3½	4½					
800000	2	3½	4	4½					
850000	2	3½	4	4½					
900000	2	3½	4	4½					
950000	2	4	4	5					
1000000	2	4	4	5					
1250000	2½	4½	4½	6					
1500000	2½	4½	5	6					
1750000	3	5	5	6					
2000000	3	5	6						

**Table 4 shall be used for the installation of Type RHT, small diameter building wire, except for rewiring in existing raceways as provided in sub-paragraph e of section 3005.

*Where a run of conduit or electrical metallic tubing does not exceed 50 feet in length and does not contain more than the equivalent of two quarter-bends from end to end: three No. 6 stranded conductors may be installed in a 1-inch conduit or tubing. For services only, three No. 8 insulated conductors may be installed in a ¾-inch conduit or tubing; two No. 6 insulated and one No. 6, bare conductors or two No. 4 insulated and one No. 4 bare conductors may be installed in 1-inch conduit or tubing; and two No. 2, insulated and one No. 2, bare conductors in 1¼-inch conduit or tubing.

ALLOWABLE CONDUIT SIZES

TABLE 5 — NUMBER OF CONDUCTORS IN CONDUIT OR TUBING

Lead-Covered Types RL, RPL and RHL — 600 V.
(See sections 3466 and 3487,
National Electrical Code.)

Size of Conductor	Number of Conductors in One Conduit or Tubing											
	Single Conductor Cable				2-Conductor Cable				3-Conductor Cable			
	1	2	3	4	1	2	3	4	1	2	3	4
14	½	¾	¾	1	½	1	1	1¼	¾	1¼	1½	1½
12	½	¾	¾	1	¾	1	1¼	1¼	1	1¼	1½	2
10	½	¾	1	1	¾	1¼	1¼	1½	1	1½	2	2
8	½	1	1¼	1½	1	1¼	1½	2	1	2	2	2½
6	¾	1¼	1½	1½	1¼	1½	2	2½	1¼	2½	3	3
4	¾	1¼	1½	1½	1¼	2	2½	2½	1½	3	3	3½
3	¾	1¼	1½	2	1¼	2	2½	3	1½	3	3	3½
2	1	1¼	1½	2	1¼	2	2½	3	1½	3	3½	4
1	1	1½	2	2	1½	2½	3	3½	2	3½	4	4½
0	1	2	2	2½	2	2½	3	3½	2	4	4½	5
00	1	2	2	2½	2	3	3½	4	2½	4	4½	5
000	1¼	2	2½	2½	2	3	3½	4	2½	4½	4½	6
0000	1¼	2½	2½	3	2½	3	3½	4½	3	5	6	6
250,000	1¼	2½	3	3	...	...	...	...	3	6	6	...
300,000	1½	3	3	3½	...	...	...	...	3½	6	6	...
350,000	1½	3	3	3½	...	...	...	...	3½	6	6	...
400,000	1½	3	3	3½	...	...	...	...	3½	6	6	...
450,000	1½	3	3	4	...	...	...	...	4	6	6	...
500,000	1½	3	3½	4	...	...	...	...	4	6	...	...
600,000	2	3½	4	4½	...	...	...	...	...	...	...	...
700,000	2	4	4	5	...	...	...	...	...	...	...	...
750,000	2	4	4	5	...	...	...	...	...	...	...	...
800,000	2	4	4½	5	...	...	...	...	...	...	...	...
900,000	2½	4	4½	5	...	...	...	...	...	...	...	...
1,000,000	2½	4½	4½	6	...	...	...	...	...	...	...	...
1,250,000	3	5	5	6	...	...	...	...	...	...	...	...
1,500,000	3	5	6	6	...	...	...	...	...	...	...	...
1,750,000	3	6	6	...	...	...	...	...	...	...	...	...
2,000,000	3½	6	6	...	...	...	...	...	...	...	...	...

The above sizes apply to straight runs or with nominal offsets equivalent to not more than two quarter-bends.

It is recommended that bends have a minimum radius of curvature at the inner edge of the bend of not less than 10 times the internal diameter of the conduit or tubing.

TABLE 6 — NUMBER OF CONDUCTORS IN CONDUIT OR TUBING

Small Diameter Building Wire, Types RHT and RPT, 600 Volts

One to Nine Conductors

For rewiring in existing raceways as provided in sub-paragraph e of section 3005, National Electrical Code.

Size of Conductor	Number of Conductors in One Conduit or Tubing								
	1	2	3	4	5	6	7	8	9
14	½	½	½	½	½	½	½	¾	¾
12	½	½	½	½	½	¾	¾	¾	¾
10	½	½	½	½	¾	¾	¾	¾	1
8	½	½	¾	¾	1	1	1	1	1¼

Note: Type RHT conductor recognized in sizes No. 14 to No. 8; Type RPT conductor recognized in sizes No. 14 to No. 10.

USEFUL INFORMATION

ALTERNATING CURRENT FORMULAS

Power Factor of an Alternating-Current is the Number by which the Apparent Power in the Circuit (Volts Times Amperes) must be Multiplied Together in Order to Ascertain True Power. When an Alternating-Current Circuit Contains Inductance, the Current Lags Behind the E. M. F., and when it Contains Capacity the Current Rises Ahead of the E. M. F.; in each case the Current and E. M. F. Reach their Maximum Values at Different Instants, and the Product of the E. M. F. and Current at any Instant is Less than it would be if the Two were in Phase with Each Other. If the E. M. F. and Current be Measured Separately the Voltmeter and Ammeter will give the Individual Mean Effective Values; if they are Measured by a Wattmeter, the Instrument Indicates their Combined Effect Synchronously, not the Product of their Effective Values which Occur at Different Instants. Consequently, the Wattmeter Indication will be Less than the Product of the Separate Voltmeter and Ammeter Readings; the Ratio of the Power to this Product is the Power Factor of the Circuit. Expressed as a Formulæ:

$$\text{Power Factor} = \frac{\text{Watts}}{\text{Amperes} \times \text{Volts}}$$

This Gives Rise to the Two Methods of Rating Electrical Apparatus, One on the Basis of Watts or Kilowatts, and the Other on the Basis of Volt-Amperes or Kilovolt-Amperes (K. V. A).

The former Represents Actual Power, Usually in K. W., while the Latter represents the Apparent Power, usually in K. V. A. (Kilovolt Ampere), Generated, Transmitted or Used by the Apparatus. The Latter or K. V. A. Rating is Coming into More General Use Since it Represents More Adequately the Voltage and Current Conditions to which the Apparatus is Subjected.

Current per Phase in Various Systems

$$I = \frac{W}{E \times P.F.} \text{ for Single-Phase Circuit.} \qquad I = 0.50 \times \frac{W}{E \times P.F.} \text{ for Two-Phase Circuit.}$$

W

$$I = 0.58 \times \frac{W}{E \times P.F.} \text{ for Three-Phase Circuit.}$$

Temp. C.=5/9 (Temp. F.—32)

Temp. F.=9/5 Temp. C.—32

I=Current in Line in Amperes; W=Energy Delivered in Watts; E=Potential between Mains in Volts; P. F.=Power Factor. When Power Factor cannot be Accurately Determined it may be Assumed as Follows: Lighting Load with no Motors, 0.95; Lighting and Motors, 0.85; Motors Only, 0.80.

ALTERNATING CURRENT GENERATOR DATA

Speeds—Speeds are Standard to give the Desired Frequency. In Order to Obtain Speed of a 60-Cycle Alternator Divide 7,200 by the Number of Poles. To Obtain Speed of a 25-Cycle Alternator Divide 3,000 by the Number of Poles. 1,200 R. P. M. and 100 R. P. M. are the Maximum Standard Speeds.

Voltage—Standard Voltages are 240, 480, 600, 1,200 and 2,400.

Cycles or Frequency—

Standard Frequencies Most Used are 60-Cycles per Second (7,200 Alternations per Minute), and 25 Cycle, per Second (3,000 Alternations per Minute). To Obtain the Frequency of an Alternator in Cycles per Seconds the Formula is to Multiply the Speed by the Number of Poles and Divide by 120.

60-Cycle Alternators are Almost Entirely Used for Central Stations Lighting and Power.

25-Cycle Alternators are Used for Railway Operation.

Phase—Standard Alternators are Built for Three-Phase or Two-Phase.

Any Three-Phase Alternator will Deliver Continuously 70% to 75 % of its Three-Phase Capacity as Single-Phase Load Connected to any Two of its Three Terminals. The Third Terminal must be Left Disconnected. Two-Phase Machines should not be Used to Supply Single-Phase Current. The Usual Plant Conditions are Best Met by Three-Phase Alternators.

Amperes per Terminal—

Amperes per Terminal at 100% Power Factor are Determined in the Various Systems as Follows:

$$\text{One-Phase Amperes per Terminal} = \frac{K.W. \times 1000}{\text{Volts}}$$

$$\text{Two-Phase Amperes per Terminal} = \frac{K.W. \times 500}{\text{Volts}}$$

$$\text{Three-Phase Amperes per Terminal} = \frac{K.W. \times 580}{\text{Volts}}$$

Regulation—

Regulation is the Percentage Rise in Voltage when Load is Thrown Off, Speed and Excitation Remaining Constant. The Smaller the Rise, the Better the Regulation.

Wave Form—

By Accurate Shaping of the Pole Face and Slots Alternators Give a Wave Form Practically Identical with the Sine Wave, which is the Ideal.

Operation in Parallel—

Alternators of Different Manufacturers will Operate Successfully in Parallel with any Other Alternator, Provided the Angular Velocity does not vary more than 2½ Electrical Degrees, Lagging or Leading, from the Normal. Thus a Total Variation not Exceeding 5 Electrical Degrees is Allowable. An Electrical Degree is the Angle between Adjacent Poles Divided by 180.

USEFUL INFORMATION

UNITS OF MEASURE

The electrical units are derived from the following mechanical units of the metric system:

METER.—A unit of length equal, approximately, to one ten-millionth part of a quadrant of a meridian of the earth taken through Paris; or, approximately, to 39.37 inches.

GRAMME.—Unit of weight. Weight of a cubic centimeter of water at a temperature of 4 degrees centigrade.

SECOND.—Unit of time. The time of one swing of a pendulum making 86,400 swings in a solar day.

ELECTRICAL UNITS

VOLT.—Such an electromotive force as would cause a current of one ampere to flow against a resistance of one ohm. Such an electromotive force as would charge a condenser of the capacity of one farad with a quantity of electricity equal to one coulomb.

OHM.—The practical unit of electric resistance. Such a resistance as would limit the flow of electricity under an electromotive force of one volt, to a current of one ampere, or one-coulomb-per-second.

MEGOHM.—1,000,000 ohms.

AMPERE.—The practical unit of electric current. A rate of flow of electricity transmitting one coulomb per second. The current of electricity which would pass through a circuit whose resistance is one ohm, under an electromotive force of one volt.

COULOMB.—The practical unit of electric quantity. Such a quantity of electricity as would pass in one second through a circuit conveying one ampere. The quantity of electricity contained in a condenser of one farad capacity, when subjected to the E. M. F. of one volt.

FARAD.—The practical unit of electric capacity. Such a capacity of a conductor or condenser that one coulomb of electricity is required to produce therein a difference of potential of one volt.

MICROFARAD (MFD).—One-millionth of a farad.

WATT.—A unit of electric power. A volt-ampere. The power developed when 44.25 foot-pounds of work are done in a minute, or 0.7375 foot-pound of work is done in a second.

JOULE.—A volt-coulomb or unit of electric energy or work. The amount of electric work required to raise the potential of one coulomb of electricity one volt. Ten million ergs.

OHM'S LAW

Ohm's law is a method of expressing relationship existing between the electromotive force, current and resistance, and is practically the basis of most electrical computations. It is expressed in various forms, as follows:

$$\text{Current Flow}=\frac{\text{Electromotive Force}}{\text{Resistance}} \text{ or, } I=\frac{E}{R}$$

Electromotive force equals the current flow multiplied by resistance.

Electromotive Force=Current Flow x Resistance, or $E=I \times R$

Resistance equals the electromotive force divided by the current flow.

$$\text{Resistance}=\frac{\text{Electromotive Force}}{\text{Current Flow}} \text{ or, } R=\frac{E}{I}$$

I=Amperes. E=Volts. R=Ohms.

Electromotive force varies directly as the current and resistance.
Resistance varies directly with the electromotive force and inversely as the current.
Current varies directly with the electromotive force and inversely as the resistance.

MIL

The "mil," whose expressed value is $\frac{\text{One}}{\text{One-Thousandth}}$ (.001) of an inch, is the practical basis for determining the diameters and thereby the area of all wires used as electric conductors. The diameters being given, the area is obtained by the well-known rule, "the area of a circle, in circular units, is equal to the square of its diameter"; hence the square of the diameter of a wire expressed in mils equals the area of its cross section.

$D^2=A$, which area is expressed in Circular Mils or CM, hence $D^2=CM$.

WIRING FORMULA

Ohm's law is practically the basis for the various formulæ in general use for determining the proper size of wire to use to carry various currents. It is essential to know the amount of current expressed in amperes, the distance, and to decide upon the loss to allow in transmission; the best rule is as follows:

The cross section (CM) of the necessary wire is found by multiplying twice the distance one way (2D) by the amount of current expressed in amperes (C) and this by the resistance of one mil-foot (10.7) and dividing by the loss in transmission expressed in volts (v).

$$\text{or, } CM=\frac{2D \times C \times 10.7}{v} \quad \text{or, } CM=\frac{D \times C \times 21.4}{v}$$

USEFUL INFORMATION

FORMULÆ FOR DETERMINING AMPERES, HORSE-POWER, KILOWATTS AND K. V. A.

To Find	Direct Current	Alternating Current		
		Single-Phase	Two-Phase* Four-Wire	Three-Phase
Amperes when Horse-power is Known	$\frac{\text{H.P.}\times 746}{\text{E}\times\%\text{Eff.}}$	$\frac{\text{H.P.}\times 746}{\text{E}\times\%\text{Eff.}\times\text{P.F.}}$	$\frac{\text{H.P.}\times 746}{2\times\text{E}\times\%\text{Eff.}\times\text{P.F.}}$	$\frac{\text{H.P.}\times 746}{1.73\times\text{E}\times\%\text{Eff.}\times\text{P.F.}}$
Amperes when Kilowatts is Known	$\frac{\text{K.W.}\times 1000}{\text{E}}$	$\frac{\text{K.W.}\times 1000}{\text{E}\times\text{P.F.}}$	$\frac{\text{K.W.}\times 1000}{2\times\text{E}\times\text{P.F.}}$	$\frac{\text{K.W.}\times 1000}{1.73\times\text{E}\times\text{P.F.}}$
Amperes when K.V.A. is Known		$\frac{\text{K.V.A.}\times 1000}{\text{E}}$	$\frac{\text{K.V.A.}\times 1000}{2\times\text{E}}$	$\frac{\text{K.V.A.}\times 1000}{1.73\times\text{E}}$
Kilowatts	$\frac{\text{I}\times\text{E}}{1000}$	$\frac{\text{I}\times\text{E}\times\text{P.F.}}{1000}$	$\frac{\text{I}\times\text{E}\times 2\times\text{P.F.}}{1000}$	$\frac{\text{I}\times\text{E}\times 1.73\times\text{P.F.}}{1000}$
K.V.A.		$\frac{\text{I}\times\text{E}}{1000}$	$\frac{\text{I}\times\text{E}\times 2}{1000}$	$\frac{\text{I}\times\text{E}\times 1.73}{1000}$
Horse-power (Output)	$\frac{\text{I}\times\text{E}\times\%\text{Eff.}}{746}$	$\frac{\text{I}\times\text{E}\times\%\text{Eff.}\times\text{P.F.}}{746}$	$\frac{\text{I}\times\text{E}\times 2\times\%\text{Eff.}\times\text{P.F.}}{746}$	$\frac{\text{I}\times\text{E}\times 1.73\times\%\text{Eff.}\times\text{P.F.}}{746}$

I=Amperes; E=Volts; %Eff.=per cent Efficiency; P.F.=Power Factor.
K.W.=Kilowatts; K.V.A.=Kilo Volt-Amperes; H.P.=Horse-power.

*For three-wire, two-phase circuits the current in the common conductor is 1.41 times that in either of the other two conductors.

WIRING FORMULA

From Ohm's Law the proper size of wire that is necessary to carry a current any distance with a given loss in volts can be readily determined.

$$\frac{\text{Length of run in ft.}\times\text{amperes}\times 21.5}{\text{Volts lost}}=\text{Circular Mils}$$

In the above Formula the number of feet must be measured one way, not both sides of the circuit; volts lost should be taken as the drop allowed in volts, and circular mils show the size of wire to use.

Example:—What size wire should be used on a 250-volt circuit where it is necessary to carry 150 amperes a distance of 300 feet to a center of distribution with a loss of 3 per cent. under full load?

$$\frac{300 \times 150 \times 21.5}{7.5}$$

= 129,000 circular mils, or No. 00 B. & S. gauge which is the next size heavier.

In using this or any other formula to determine the size of copper to use, care should be taken to see that the size adopted is not smaller than allowed in the Underwriters' table of safe carrying capacities, which are fixed without considering the loss in line.

The general practice in balanced 3-wire direct-current systems with a ceneral neutral wire is to figure the line loss on the same size as either of the others.

The above Wiring Formula is based upon one foot of copper wire, having a cross sectional area of one circular mil, with a resistance of approximately 10.75 ohms, so that the resistance of any copper wire—

$$\frac{\text{Length in feet} \times 10.75}{\text{Circular Mils}}$$

Substituting this expression for R. in Ohm's Law:

$$\text{E}=\frac{\text{C} \times \text{length in feet} \times 10.75}{\text{Circular Mils}}$$

and circular mils =

$$\frac{\text{C} \times \text{length in feet} \times 10.75}{\text{E}}$$

In the Wiring Formula, however, the length in feet is considered the "run" one side of the circuit, and the term 10.75 is multiplied by 2.

USEFUL INFORMATION

VOLTS LOST PER 1,000 FEET PER AMPERE

Size Circular Mils	Volts Lost	Size Circular Mils	Volts Lost
2,000,000	0.00535	0000	0.05053
1,750,000	0.00611	000	0.06372
1,500,000	0.00713	00	0.08035
1,250,000	0.00856	0	0.10126
1,000,000	0.01070	1	0.12776
950,000	0.01126	2	0.16109
900,000	0.01189	3	0.20315
850,000	0.01259	4	0.25615
800,000	0.01337	5	0.32302
750,000	0.01427	6	0.40732
700,000	0.01529	7	0.51367
650,000	0.01646	8	0.64767
600,000	0.01783	9	0.81659
550,000	0.01945	10	1.0300
500,000	0.02140	12	1.6375
450,000	0.02378	14	2.6685
400,000	0.02675	16	4.1397
350,000	0.03057	18	6.5828
300,000	0.03567	19	8.5376
250,000	0.04280	20	10.467

TABLE OF MULTIPLES

Diameter of a circle×3.1416=Circumference.
Radius of a circle×6.283185=Circumference.
Square of the radius of a circle×3.1416=Area.
Square of the diameter of a circle×0.7854=Area.
Square of the circumference of a circle×0.07958=Area.
Half the circumference of a circle×by half its diameter= Area.
Circumference of a circle×0.159155=Radius.
Square root of the area of a circle×0.56419=Radius.
Circumference of a circle×0.31831=Diameter.
Square root of the area of a circle×1.12838=Diameter.
Diameter of a circle×0.86=Side of an inscribed equilateral triangle.
Diameter of a circle×0.7071=Side of an inscribed square.
Circumference of a circle×0.225=Side of an inscribed square.
Circumference of a circle×0.282=Side of an equal square.
Diameter of a circle×0.8862=Side of an equal square.
Base of a triangle×by one-half the altitude=Area.
Multiplying both diameter and .7854 together=Area of an ellipse.
Surface of a sphere×by one-sixth of its diameter=Solidity.
Circumference of a sphere×by its diam.=Surface.
Square of the diam. of a sphere×3.1416=Surface.
Square of the circumference of a sphere×0.3183=Surface.
Cube of the diam. of a sphere×0.5236=Solidity.
Cube of the circumference of a sphere×0.016887=Solidity.
Radius of a sphere×1.1547=Side of an inscribed cube.
Square root of (one-third of the square of) the diam. of a sphere=Side of an inscribed cube.
Area of its base×one-third of its altitude=Solidity of a cone or pyramid, whether round, square or triangular.
Area of one of its sides×6=Surface of a cube.
Altitude of trapezoid×one-half the sum of its parallel sides=Area.

TABLE CONVERTING FRACTIONS TO DECIMALS

Fraction							Decimal Equiv.	Fraction							Decimal Equiv.
1	½	¼	⅛	1/16	1/32	1/64		1	½	¼	⅛	1/16	1/32	1/64	
						1	.015625							33	.515625
					1	2	.03125						17	34	.53125
						3	.046875							35	.546875
				1	2	4	.0625					9	18	36	.5625
						5	.087125							37	.578125
					3	6	.09375						19	38	.59375
						7	.109375							39	.609375
			1	2	4	8	.125				5	10	20	40	.625
						9	.140625							41	.640625
					5	10	.15625						21	42	.65625
						11	.171875							43	.671875
				3	6	12	.1875					11	22	44	.6875
						13	.203125							45	.703125
					7	14	.21875						23	46	.71875
						15	.234375							47	.734375
		1	2	4	8	16	.25			3	6	12	24	48	.75
						17	.265625							49	.765625
					9	18	.28125						25	50	.78125
						19	.296875							51	.796875
				5	10	20	.3125					13	26	52	.8125
						21	.328125							53	.828125
					11	22	.34375						27	54	.84375
						23	.359375							55	.859375
			3	6	12	24	.375				7	14	28	56	.875
						25	.390625							57	.890625
					13	26	.40625						29	58	.90625
						27	.421875							59	.921875
				7	14	28	.4375					15	30	60	.9375
						29	.453125							61	.953125
					15	30	.46875						31	62	.96875
						31	.484375							63	.984375
	1	2	4	8	16	32	.5	1	2	4	8	16	32	64	1000000
1	½	¼	⅛	1/16	1/32	1/64		1	½	¼	⅛	1/16	1/32	1/64	

Example of the Use of Fraction and Decimal Table

What is the Largest Twin Parallel Conductor that can be Drawn through a 3-4 Inch Conduit? Look down the Column of Quarters (¼) for 3, the Decimal is .75, Single is ½ Diameter of Twin, ½ of .75=.375. Look in our Over All Diameter Column of Stranded Wires for the next smaller Decimal to .375; we find .351 against No. 7, Stranded, or .350 for No. 6, Solid.

DECIMAL EQUIVALENTS OF FRACTIONAL PARTS OF A FOOT

Parts of a Foot	Decimal Equiv.	Parts of a Foot	Decimal Equiv.	Parts of a Foot	Decimal Equiv.
12 In.	1.0000	5 In.	.4166	⅝ In.	.05208
11 In.	.9166	4 In.	.3333	½ In.	.04166
10 In.	.833	3 In.	.2500	⅜ In.	.03125
9 In.	.75	2 In.	.1666	¼ In.	.02083
8 In.	.6666	1 In.	.0833	⅛ In.	.010416
7 In.	.5833	⅞ In.	.07291	1/16 In.	.005208
6 In.	.5000	¾ In.	.0625		

USEFUL INFORMATION

MELTING POINT AND RELATIVE CONDUCTIVITY OF DIFFERENT METALS AND ALLOYS

Metals	Relative Conductivity	Melting Point° F.
Pure silver	100.0	1873
Pure copper	100.0	2550
Refined and crystallized copper	99.9	....
Telegraphic silicious bronze	98.0	....
Alloy of copper and silver (50%)	86.65	....
Pure gold	78.0	2016
Silicide of copper, 4 % Si	75.0	....
Silicide of copper, 12% Si	54.7	....
Pure aluminum	54.2	1160
Tin with 12% of sodium	46.9	....
Telephonic silicious bronze	35.0	....
Copper with 10% of lead	30.0	....
Pure zinc	29.9	773
Telephonic phosphor-bronze	29.0	....
Silicious brass, 25% zinc	26.4	....
Brass with 35% zinc	21.59	....
Phosphor-tin	17.7	....
Alloy of gold and silver (50%)	16.12	....
Swedish iron	16.4	4000
Pure Banca Tin	15.5	442
Antimonial copper	12.7	....
Aluminum bronze (10%)	12.6	....
Siemens steel	12.0	....
Pure platinum	10.6	4100
Copper with 10% of nickel	10.6	....
Cadmium Amalgam (15%)	10.2	....
Dronier mercurial bronze	10.14	....
Arsenical copper (10%)	9.1	....
Pure lead	8.88	630
Bronze with 20% tin	8.4	....
Pure nickel	7.89	2800
Phosphor-bronze, 10% tin	6.5	....
Phosphor-copper, 9% phos.	4.9	....
Antimony	3.88	840

CURRENT REQUIRED TO FUSE WIRES, COPPER, GERMAN SILVER AND IRON

B. & S. Gauge	Copper, Amperes	German Silver, Amperes	Iron, Amperes
10	333.0	169.0	101.0
11	284.0	146.0	86.0
12	235.0	120.7	71.2
13	200.0	102.6	63.0
14	166.0	85.2	50.2
15	139.0	71.2	42.1
16	117.0	60.0	35.5
17	99.0	50.4	32.6
18	82.8	42.5	25.1
19	66.7	43.2	20.2
20	58.3	29.9	17.7
21	49.3	25.3	14.9
22	41.2	21.1	12.5
23	34.5	17.7	10.9
24	28.9	14.8	8.76
25	24.6	12.6	7.46
26	20.6	10.6	6.22
27	17.7	9.1	5.36
28	14.7	7.5	4.45
29	12.5	6.41	3.79
30	10.25	5.26	3.11
31	8.75	4.49	2.65
32	7.26	3.73	2.2
33	6.19	3.18	1.88
34	5.12	2.64	1.55
35	4.37	3.24	1.33
36	3.62	1.86	1.09
37	3.08	1.58	.93
38	2.55	1.31	.77
39	2.20	1.13	.67
40	1.86	.95	.56

COMPARISON OF CENTIGRADE AND FAHRENHEIT THERMOMETER SCALES

Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.
0	32.0	26	78.8	52	125.6	78	172.4
1	33.8	27	80.6	53	127.4	79	174.2
2	35.6	28	82.4	54	129.2	80	176.0
3	37.4	29	84.2	55	131.0	81	177.8
4	39.2	30	86.0	56	132.8	82	179.6
5	41.0	31	87.8	57	134.6	83	181.4
6	42.8	32	89.6	58	136.4	84	183.2
7	44.6	33	91.4	59	138.2	85	185.0
8	46.4	34	93.2	60	140.0	86	186.8
9	48.2	35	95.0	61	141.8	87	188.6
10	50.0	36	96.8	62	143.6	88	190.4
11	51.8	37	98.6	63	145.4	89	192.2
12	53.6	38	100.4	64	147.2	90	194.0
13	55.4	39	102.2	65	149.0	91	195.8
14	57.2	40	104.0	66	150.8	92	197.6
15	59.0	41	105.8	67	152.6	93	199.4
16	60.8	42	107.6	68	154.4	94	201.2
17	62.6	43	109.4	69	156.2	95	203.0
18	64.4	44	111.2	70	158.0	96	204.8
19	66.2	45	113.0	71	159.8	97	206.6
20	68.0	46	114.8	72	161.6	98	208.4
21	69.8	47	116.6	73	163.4	99	210.2
22	71.6	48	118.4	74	165.2	100	212.0
23	73.4	49	120.2	75	167.0	.....	....
24	75.2	50	122.0	76	168.8	.....	....
25	77.0	51	123.8	77	170.6	.....	....

Temperature corrections based on room temperature of 25° C. If the temperature of room during a test differs from 25° C., corrections should be made by changing the observed rise of temperature by one-half per cent. for each degree C. Thus with a room temperature of 35° C. the observed rise has to be decreased by 5 per cent., and with a room temperature of 15° C. the observed rise has to be increased by 5 per cent.

CONDUCTIVITIES

Metal	At 0° C. At 32° F.	At 100° C. At 212° F.
Silver	100.0	71.56
Copper, Hard	99.95	70.27
Gold, Hard	77.96	55.90
Zinc, Pressed	29.02	20.67
Cadmium	23.72	16.77
Platinum, Soft	18.00	....
Iron, Soft	16.80	....
Tin	12.36	8.67
Lead	8.32	5.86
Arsenic	4.76	3.33
Antimony	4.62	3.26
Mercury, Pure	1.60	....
Bismuth	1.245	0.878

The Conductance of a piece of any Metal 1 Cm. Long and 1 Sq. Cm. in Cross-Section is called its Specific Conductance or Conductivity. Conductance is the Reciprocal of Resistance, and Conductivity is the Reciprocal of Resistivity. If the Resistance of 2 Cm. of a piece of any Metal having a Uniform Cross Sectional Area of 1 Sq. Cm. is 4 ohms, its Resistivity is 2 ohms, Conductance ¼ Mho (Ohm Spelled Backwards) and its Conductivity ½ Mho. Percentage Conductivity of a Substance is the Ratio of its Conductivity to that of the Standard at the same Temperature. The Conductivity of Matthiessen's Pure Copper at 0° C. is usually taken as the Standard, 100 per cent.

USEFUL INFORMATION

AREA OF CIRCLES

Diameter	Area	Diameter	Area	Diameter	Area
⅛	0.0123	16	201.06	54	2290.2
¼	0.0491	16½	213.82	55	2375.8
⅜	0.1104	17	226.98	56	2463.0
½	0.1963	17½	240.52	57	2551.7
⅝	0.3068	18	254.46	58	2642.0
¾	0.4418	18½	268.80	59	2733.9
⅞	0.6013	19	283.52	60	2827.4
1	0.7854	19½	298.64	61	2922.4
1⅛	0.9940	20	314.16	62	3019.0
1¼	1.227	20½	330.06	63	3117.2
1⅜	1.484	21	346.36	64	3216.9
1½	1.767	21½	363.05	65	3318.3
1⅝	2.073	22	380.13	66	3421.2
1¾	2.405	22½	397.60	67	3525.6
1⅞	2.761	23	415.47	68	3631.6
2	3.141	23½	433.73	69	3739.2
2¼	3.976	24	452.29	70	3848.4
2½	4.908	24½	471.43	71	3959.2
2¾	5.939	25	490.87	72	4071.5
3	7.068	26	530.93	73	4185.4
3¼	8.295	27	572.55	74	4300.8
3½	9.621	28	615.75	75	4417.8
3¾	11.044	29	660.52	76	4536.4
4	12.566	30	706.86	77	4656.6
4½	15.904	31	754.76	78	4778.3
5	19.635	32	804.24	79	4901.6
5½	23.758	33	855.30	80	5026.5
6	28.274	34	907.92	81	5153.0
6½	33.183	35	962.11	82	5281.0
7	38.484	36	1017.8	83	5410.6
7½	44.178	37	1075.2	84	5541.7
8	50.265	38	1134.1	85	5674.5
8½	56.745	39	1194.5	86	5808.8
9	63.617	40	1256.6	87	5944.6
9½	70.882	41	1320.2	88	6082.1
10	78.54	42	1385.4	89	6221.1
10½	86.59	43	1452.2	90	6361.7
11	95.03	44	1520.5	91	6503.9
11½	103.86	45	1590.4	92	6647.6
12	113.09	46	1661.9	93	6792.9
12½	122.71	47	1734.9	94	6939.8
13	132.73	48	1809.5	95	7088.2
13½	143.13	49	1885.7	96	7238.2
14	153.93	50	1963.5	97	7389.8
14½	165.13	51	2042.8	98	7542.9
15	176.71	52	2123.7	99	7697.7
15½	188.69	53	2206.1	----	---------

To compute the area of a diameter greater than any in the above table:

Rule:—Divide the dimension by 2, 3, 4, etc., if practicable, until it is reduced to a quotient to be found in the table; then multiply the tabular area of the quotient by the square of the factor. The product will be the area required.

Example:—What is area of diameter of 150? 150÷5=30. Tabular area of 30=706.86, which ×25=17,671.5, area required.

HYDRAULICS

Lbs. per sq. in.=0.434 times head of water in feet.

Head in feet=2.3×pounds per sq. in.

Weight per cu. ft. of water=62.4 lbs.

Weight per gallon of water=8.33 lbs.

If L is the length of a pipe, D is its diameter (both in feet) and V the velocity of flow of liquid in feet per second, the loss of head due to friction, or the friction head, is

$$H=\frac{.02LV_2}{64.4\ D}$$

The total head to be pumped against is considered equal to the sum of the friction head and the actual head.

TABLE SHOWING THE DIFFERENCES BETWEEN WIRE GAUGES

Nos.	Brown & Sharpe's	Old English or London	Stubs' or Birmingham	New British Standard
0000	.460	.454	.454	.400
000	.40964	.425	.425	.372
00	.36480	.380	.380	.348
0	.32486	.340	.340	.324
1	.28930	.300	.300	.300
2	.25763	.284	.284	.276
3	.22942	.259	.259	.252
4	.20431	.238	.238	.232
5	.18194	.220	.220	.212
6	.16202	.203	.203	.192
7	.14428	.180	.180	.176
8	.12849	.165	.165	.160
9	.11443	.148	.148	.144
10	.10189	.134	.134	.128
11	.09074	.120	.120	.116
12	.08081	.109	.109	.104
13	.07196	.095	.095	.092
14	.06408	.083	.083	.080
15	.05706	.072	.072	.072
16	.05082	.065	.065	.064
17	.04525	.058	.058	.056
18	.04030	.049	.049	.048
19	.03589	.042	.042	.040
20	.03196	.035	.035	.036
21	.02846	.0315	.032	.032
22	.025347	.0295	.028	.028
23	.022571	.027	.025	.024
24	.0201	.025	.022	.022
25	.0179	.023	.020	.020
26	.01594	.0205	.018	.018
27	.014195	.01875	.016	.016.4
28	.012641	.0165	.014	.014.8
29	.011257	.0155	.013	.013.6
30	.010025	.01375	.012	.012.4
31	.008928	.01225	.010	.011.6
32	.00795	.01125	.009	.010.8
33	.00708	.01025	.008	.010
34	.0063	.0095	.007	.009.2
35	.00561	.009	.005	.008.4
36	.005	.075	.004	.007.6
37	.00445	.0065	-----	-----
38	.003965	.00575	-----	-----
39	.003531	.005	-----	-----
40	.003144	.0045	-----	-----

The Brown and Sharpe (B. & S.) Wire Gauge, sometimes called American Wire Gauge (A. W. G.), is generally used in the United States. Other gauges and their comparative diameters are also given in the above table; dimensions of wire are given in decimal parts of an inch.

WEIGHTS AND SPEEDS OF FLYWHEELS

To obtain the weight of rim flywheels in pounds, find the volume of the rim in cubic feet and multiply by 450, the weight of a cubic foot of iron. To allow for the arms, weight must be added as follows:

For wheels up to 8 ft. diameter add 30% of rim weight.

For wheels from 8 ft. to 12 ft. add 40% of rim weight.

For wheels above 12 ft. add 30% of rim weight.

The limiting peripheral speeds for flywheels are as follows:

Cast iron..................5000 to 6000 ft. per minute.
Cast Steel ....10,000 ft. per minute.
Riveted boiler plate..20,000 to 25,000 ft. per min.

USEFUL INFORMATION

EQUIVALENT VALUE IN DIFFERENT UNITS

1 H. P.=

746 watts
.746 K.W.
33,000 ft.-lbs. per minute
550 ft.-lbs. per second
2,545 heat-units per hour
42.4 heat-units per minute
.707 heat-unit per second
.175 lb. carbon oxidized per hour
2.64 lbs. water evaporated per hour from and at 212° F.

1 H. P. Hour=

746 K. W. hours
1,980,000 ft.-lbs.
2,545 heat-units
273,740 k.g.m.
.175 lb. carbon oxidized with perfect efficiency
2.64 lbs. water evaporated from and at 212°F.
17.0 lbs. water raised from 62° to 212° F.

1 Kilowatt=

1,000 watts
1.34 H. P.
2,654,200 ft.-lbs. per hour
44,240 ft.-lbs. per minute
737.3 ft-lbs. per second
3,412 heat-units per hour
56.9 heat-units per minute
.948 heat-unit per second
.2275 lb. carbon oxidized per hour
3.53 lbs. water evaporated per hour from and at 212° F.

1 Watt per Sq. In=

8.19 heat-units per sq. ft. per minute
6,371 ft.-lbs. per sq. ft. per minute
.193 H. P. per sq. ft.

1 Kilogram Meter=

7.233 ft.-lbs.
.00000365 H.P. hour
.00000272 K. W. hour
.0093 heat-unit

1 Lb. Water Evaporated from and at 212° F.=

.283 K. W. hour
.379 H. P. hour
965.7 heat-units
103,900 k. g. m.
1,019,000 joules
751,300 ft.-lbs.
.0664 lb. of carbon oxidized

1 Heat-unit=

1,055 watt seconds
778 ft.-lbs.
107.6 kilogram meters
.000293 K. W. hour
.000393 H.P. hour
.0000688 lb. carbon oxidized
1001036 lb. water evaporated from and at 212° F.

1 Heat-unit per Sq. Ft. per Min.=

.122 watt per sq. in.
.0176 K. W. per sq. ft.
.0236 H.P. per sq. ft.

1 Watt=

1 joule per second
.00134 H. P.
3,412 heat-units per hour
.7373 ft.-lbs. per second
.0035 lb. water evaporated per hour
44.24 ft.-lbs. per minute

1 K. W. Hour=

1,000 watt hours
1.34 H.P. hours
2,645,200 ft.-lbs.
3,600,000 joules
3,412 heat-units
367,000 kilogram meters
.235 lb. carbon oxidized with perfect efficiency
3.53 lbs. water evaporated from and at 212°F.
22.75 lbs. of water raised from 62° to 212° F.

1 Joule=

1 watt second
.000000278 K. W. hour
.102 k. g. m.
.0009477 heat-units
.7373 ft-lb.

1 Ft.-lb.=

1.356 joules
.1383 k. g. m.
.000000377 K. W. hour
.001285 heat-unit
.0000005 H. P. hour

1 Lb. Carbon Oxidized with Perfect Efficiency=

14,544 heat-units
1.11 lbs. anthracite coal oxidized
2.5 lbs. dry wood oxidized
21 cu. ft illuminating gas
4.26 K. W. hours
5.71 H. P. hours
1,315,000 ft.-lbs.
15 lbs. of water evaporated from and at 212° F.

EQUIVALENTS OF ELECTRICAL UNITS

1 Watt=44.236 foot-pounds per minute
1 Watt=2654.16 foot-pounds per hour
1 Kilowatt=44235 foot-pounds per minute
1 Kilowatt=1.34 H. P.
1 Kilowatt=0.955 B. T. U. per second
1 Kilowatt=57.3 B. T. U. per minute
1 Kilowatt=3438 B. T. U. per hour
1 Horse Power=33000 foot-pounds per minute
1 Horse Power=746 Watts
1 Horse Power=42.746 B. T. U. per minute
1 Horse Power=2564.76 B. T. U. per hour

1 B.T.U. (British Thermal Unit)=772 ft. lbs.
1 B.T.U.=17.452 watt minutes
1 B.T.U.=0.2909 watt hour
Laten heat of evaporation of water=966 B.T.U.
Laten heat of melting of water=142 B. T. U.
To evaporate 1 lb. water from and at 212°=16.859 K. W. minutes
To evaporate 1 lb. water from and at 212°=0.281 K. W. hours
Weight per cu. ft. of water=62.42 lbs.
Weight per gallon of water=8.33 lbs.

USEFUL INFORMATION

WIRE DATA

Standard Stranded Copper Conductors

Size C. M.	Number of Wires In The Strand								
	7	19	37	7x7—49	61	91	127	169	217
	Diameter In Inches of Each Wire In The Strand								
2000000	.5345	.3243	.2325	.202	.181	.1482	.1255*	.1088	.096
1750000	.5000	.3034	.2175	.189	.1694	.1386	.1157*	.1003	.0898
1500000	.4629	.2810	.2013	.175	.1568	.1284*	.1087	.0942	.0831
1250000	.4226	.2565	.1838	.1507	.1431	.1172	.0992	.086	.0759
1000000	.378	.2294	.1644	.1429	.1285*	.1048	.0887	.0769	.0678
950000	.3684	.2236	.1602	.1392	.1248*	.1021	.0864	.075	.0662
900000	.3586	.2176	.1559	.1355	.1215*	.0994	.0841	.073	.0644
850000	.3484	.2115	.1516	.1317	.1181*	.0966	.0818	.0709	.0626
800000	.338	.205	.147	.1278	.1145*	.0937	.0793	.0687	.0607
750000	.3273	.1986	.1424	.1237	.1109*	.0908	.0768	.0666	.0588
700000	.3163	.1919	.1375	.1195	.1071*	.0883	.0742	.0644	.0568
650000	.3047	.1850	.1325	.1152	.1032*	.0845	.0716	.0620	.0547
600000	.2928	.1778	.1273	.1107	.0992*	.0812	.0687	.0596	.0526
550000	.2803	.1701	.1219	.106	.0950*	.0777	.0658	.0570	.0503
500000	.2672	.1622	.1162*	.101	.0905	.0741	.0627	.0544	.048
450000	.2535	.1539	.1103*	.0958	.0859	.0703	.0595	.0516	.0455
400000	.2391	.1451	.1040*	.0904	.081	.0663	.0561	.0487	.0429
350000	.2236	.1357	.0973*	.0845	.0757	.0320	.0526	.0455	.0401
300000	.207	.1257	.0901*	.0783	.0701	.0573	.0486	.0421	.0372
250000	.189	.1147	.0822*	.0714	.064	.0524	.0444	.0384	.0340
Size B.&S.									
0000	.1736	.1055*	.0756	.0657	.0589	.0482	.0408	-------	-------
000	.1548	.0940*	.0673	.0586	.0525	.0429	.0363	-------	-------
00	.1378	.0836*	.0599	.0521	.0467	.0382	.0323	-------	-------
0	.1228	.0746*	.0534	.0464	.0416	.0340	.0288	-------	-------
1	.1093	.0663*	.0475	.0413	.0370	.0303	.0252	-------	-------
2	.0973*	.0592	.0423	.0369	.0329	.0269	.0228	-------	-------
3	.0867*	.0526	.0377	.0327	.0294	.0240	.0203	-------	-------
4	.0772*	.0468	.0335	.0291	.0261	.0214	.0179	-------	-------
5	.0687*	.0417	.0299	.026	.0233	.0190	.0161	-------	-------
6	.0612*	.0372	.0266	.0231	.0207	.0169	.0143	-------	-------
7	.0545*	.0331	.0237	-------	.0184	.0151	.0128	-------	-------
8	.0485*	.0293	.0211	.0184	.0164	.0135	.0114	-------	-------
9	.0435*	.0262	.0187	-------	.0146	.0120	.0101	-------	-------
10	.0385*	.0223	.0168	-------	.0129	.0106	.0090	-------	-------

*Indicates standard construction for rubber covered cables.

Equivalents of Wires

Showing Approximately Equal Capacities in the Use of Conductors of Different Sizes

Total Capacity C. M.	Equivalent In Number of Smaller Conductors or Combinations						
	2	3	4	5	6	Combinations	
1000000	-------	-------	-------	0000	000	------------	------------
800000	-------	-------	0000	000	00	------------	------------
600000	-------	0000	000	00	0	------------	------------
500000	-------	000	00	0	1	------------	------------
400000	0000	00	0	1	2	------------	------------
350000	000	-------	1	2	-----	0000 & 00	------------
300000	-------	0	2	-------	3	000 & 00	0000 & 1
250000	00	1	-------	3	4	000 & 1	0000 & 4
B.&S.							
0000	0	2	3	4	5	00 & 1	000 & 3
000	1	3	4	5	6	0 & 2	00 & 5
00	2	4	5	6	-----	1 & 3	0 & 6
0	3	5	6	-------	8	2 & 4	------------
1	4	6	-------	8	-----	3 & 5	------------
2	5	-------	8	-------	-----	4 & 6	------------
3	6	8	-------	10	-----	------------	------------
4	-------	-------	10	-------	-----	6 & 8	------------
5	8	10	-------	12	-----	------------	------------
6	-------	-------	12	-------	14	8 & 10	------------
8	-------	-------	14	-------	16	10 & 12	------------
10	-------	-------	16	-------	18	12 & 14	------------

USEFUL INFORMATION

COMPARATIVE RESISTANCES

Comparative resistances of various materials taking copper as 1.

To find the resistance of any wire, first get the resistance of the same length and size of copper wire, then multiply this by figure below for the wire used.

Copper	1	Advance	.28	Phosphor-Bronze	3.
Norway Iron	7	S. B.	.32	Platinum	5.5
Soft Steel	8	Climax	.50	Iron Wire (E. B. B.)	5.5
18 Per Cent German Silver	18	Silver	.98	Iron Wire (BB)	6.4
30 Per Cent German Silver	28	Aluminum	1.8	Iron Wire (Special)	7.4

18 Per Cent German Silver

Resistance per mil foot, 189 Ohms.

Temperature co-efficient .00017 per degree Fahr.

No. B.&S.	Ohms 1000 Ft.	No. B.&S.	Ohms 1000 Ft.	No. B.&S.	Ohms 1000 Ft.	No. B.&S.	Ohms 1000 Ft.	No. B.&S.	Ohms 1000 Ft.	No. B.&S.	Ohms 1000 Ft.
0	1.7	7	9.1	14	46.1	21	234	28	1192	35	6020
1	2.2	8	11.5	15	58.2	22	295	29	1480	36	7560
2	2.8	9	14.5	16	72.7	23	370	30	1890	37	9550
3	3.6	10	18.1	17	93.4	24	468	31	2386	38	12038
4	4.5	11	22.8	18	118.	25	590	32	2950	39	15240
5	5.7	12	28.8	19	146.	26	749	33	3740	40	19285
6	7.2	13	36.5	20	184.	27	936	34	4760	----	---------

Tensile Strength of Copper Wire

Size, Wire B.&S.	Breaking Wt., Lbs.		Size, Wire B.&S.	Breaking Wt., Lbs.		Size, Wire B.&S.	Breaking Wt., Lbs.	
	Hand-Drawn	Annealed		Hand-Drawn	Annealed		Hand-Drawn	Annealed
0000	9971	5650	5	1559	883	13	244	138
000	7907	4480	6	1237	700	14	193	109
00	6271	3553	7	980	555	15	153	87
0	4973	2818	8	778	440	16	133	69
1	3943	2234	9	617	349	17	97	55
2	3127	1772	10	489	277	18	77	43
3	2480	1405	11	388	219	19	61	34
4	1967	1114	12	307	174	20	48	27

Properties of Climax Resistance Wire

Resistance per mil foot at 75° Fahr.—525 Ohms.

Temperature co-efficient .0004 per degree Fahr.

Specific gravity, 8.137.

No. B.&S	Diam. In.	Area In Cir. Mils C.M=D2	Resistance per 1000 Ft. at 75°F.	Wt.Lbs. Per 1000 Ft. Bare	Ohms Per Lb.	No. B.&S.	Diam. In.	Area In Cir. Mils C.M.=D2	Resistance Per 1000 Ft. at 75°F.	Wt.Lbs. Per 1000 Ft. Bare	Ohms Per Pound
1	.289	83521	6.2	231.	.026	21	.0285	812.3	646	2.24	284
2	.258	66564	7.9	184.	.041	22	.0253	640.1	820	1.77	456
3	.229	52441	10.	145.	.066	23	.0226	510.8	1027	1.41	720
4	.204	41616	12.6	115.	.105	24	.0201	404.	1290	1.12	1142
5	.182	33124	15.8	92.	.165	25	.0179	320.4	1640	.89	1810
6	.162	26244	20.	73.	.263	26	.0159	252.8	2080	.70	2920
7	.144	20736	25.3	57.	.427	27	.0142	201.6	2580	.56	4570
8	.128	16384	32.	45.	.685	28	.0126	158.8	3300	.44	7400
9	.116	12996	40.4	36.	1.08	29	.0113	127.7	4100	.35	11560
10	.102	10404	50.4	29.	1.65	30	.010	100.	5250	.276	18785
11	.091	8281	63.4	23.	2.70	31	.0089	79.2	6620	.219	29800
12	.081	6561	80.	18.	4.27	32	.008	64.	8200	.177	45265
13	.072	5184	101.	14.3	6.85	33	.0071	50.4	10410	.139	73214
14	.064	4096	128.	11.3	10.9	34	.0063	39.7	13220	.11	118300
15	.057	3249	161.	9.2	16.9	35	.0056	31.4	16720	.087	189000
16	.051	2601	202.	7.2	27.	36	.005	25.	21000	.069	300000
17	.045	2025	258.	5.6	44.5	37	.0045	20.2	26000	.056	468000
18	.040	1600	328.	4.42	71.3	38	.004	16.	33000	.045	733000
19	.036	1296	404.	3.58	108.	39	.0035	12.2	43000	.034	1264000
20	.032	1024	510.	2.83	174.	40	.003	9.	58000	.025	2320000

USEFUL INFORMATION

ALUMINUM AND IRON WIRE

Stranded Aluminum Wire

62 Per Cent Conductivity

No. B.&S. Gauge	Circular Mils	Diam., Inches Standard Wire	Weight In Pounds			Resis., Ohms Per 1000 Ft. 75°F.
			Per 1000 Ft. Bare	Per 1000 Ft. T.B.W.P.	Per 1000 Ft. D.B.W.P.	
-------	1000000	1.152	920.	1408	------	.01675
-------	950000	1.125	874.	1340	------	.01763
-------	900000	1.092	828.	1270	------	.01861
-------	850000	1.062	782.	1202	------	.01969
-------	800000	1.035	736.	1135	------	.02092
-------	750000	.999	690.	1067	------	.02232
-------	700000	.963	644.	1001	------	.02392
-------	650000	.927	598.	938	------	.02575
-------	600000	.891	552.	878	------	.02789
-------	550000	.855	506.	806	------	.03044
-------	500000	.819	460.	740	------	.03347
-------	450000	.770	414.	665	------	.03720
-------	400000	.728	368.	567	------	.04184
-------	350000	.679	322.	502	------	.04782
-------	300000	.630	276.	436	------	.0558
-------	250000	.590	230.	375	------	.06698
0000	211600	.530	195.	280	266	.07912
000	167805	.470	155.	232	218	.09958
00	133079	.420	123.	192	169	.12563
0	105534	.375	97.	155	127	.1584
1	83694	.330	77.	132	103	.2004
2	66373	.291	61.	108	90	.2515
3	52634	.261	48.5	88	74	.3182
4	41742	.231	38.5	72	62	.4012
5 Solid	33102	.181	30.17	63	55	.5226
6 Solid	26250	.162	23.93	56	45	.6591
8 Solid	16509	.128	15.05	37	35	1.068

Galvanized Iron Wire

No. B.W.G.	Diam. Mils	Weight Pounds		Breaking Weight Pounds		Resistance Per Mile In Ohms		
		Per 1000 Ft.	Per One Mile	Iron	Steel	E.B.B.	B.B.	Steel
0	340	304.	1607	4821	9079	2.93	3.42	4.05
1	300	237.	1251	3753	7068	3.76	4.4	5.2
2	284	212.	1121	3363	6335	4.19	4.91	5.8
3	259	177.	932	2796	5268	5.04	5.9	6.97
4	238	149.	787	2361	4449	5.97	6.99	8.26
5	220	127.	673	2019	3801	6.99	8.18	9.66
6	203	109.	573	1719	3237	8.21	9.6	11.35
7	180	85.	450	1350	2545	10.44	12.21	14.43
8	165	72.	378	1134	2138	12.42	14.53	17.18
9	148	58.	305	915	1720	15.44	18.06	21.35
10	134	47.	250	750	1410	18.83	22.04	26.04
11	120	38.	200	600	1131	23.48	27.48	32.47
12	109	31.	165	495	933	28.46	33.3	39.36
13	95	24.	125	375	709	37.47	43.85	51.82
14	83	18.	96	288	541	49.08	57.44	67.88
15	72	13.7	72	216	407	65.23	76.33	90.21
16	65	11.1	59	177	332	80.03	93.66	110.7
17	58	8.9	47	141	264	100.5	120.4	139.
18	49	6.3	33	99	189	140.8	164.8	194.8

DATA FOR ELECTRIC HEATING CALCULATIONS

Correct application of the heater is just as important as correct selection, and depends mostly upon elimination of heat losses through radiation, convection and conduction. One of the important advantages of electric heat is that it can be applied almost exactly where it is required, with little heat lost in transmission. Radiation and convection losses from the material, machine or container can be reduced by efficient insulation of heated parts. Here again, the inherently simple construction of electric heaters facilitates application of the insulating material. Heat losses can also be calculated easily and accurately, and the applicable data is included for each type of material as follows:

Volume of cylindrical tank = Radius x Radius x 3.1416 x Length
1 gallon = 231 cu. in.
1 gallon of water = 8⅓ lbs.
1 cubic foot of water = 62.5 lbs.
1 kilowatt hour will raise temperature of 4 gallons of water 100° F.
1 kilowatt hour = 3412 B.T.U.

LIQUID HEATING

The most efficient method of heating any liquid is by direct immersion, since the heat is then applied directly to the material and losses can be held to a minimum. However, when obstructions within the container, nature of liquid or other special conditions prevent direct immersion, conduction type heaters may be clamped to the bottom and sides of the tank. Obviously, the heat losses of clamp-on applications are greater and such installations usually require a greater total applied wattage than immersion applications.

Characteristics and Heat Requirements of Common Liquids

Liquid	Specific Heat	Weight Lbs. per Gal.	Weight Lbs. per Cu. Ft.	Watt hours per Lb. per Deg. F. Rise
Alcohol	.65	7.4	55	.19
Glycerin	.58	10.6	79	.170
Oil (Machine)	.40	7.8	58	.117
Paraffin	.71	7.5	56	.208
Petroleum	.50	7.5	57	.149
Water	1.0	8.3	63	.293

To evaporate one pound of water at 212° F. requires 283 watt hours.

Total watthours or watts required to heat up in one hour equals:—Total weight in lbs. x degrees F. rise x watt hours per lb. per degree F. rise.

If two hours can be allowed use half this value. If only one half hour can be allowed, use double this value, etc.

EXAMPLE:—10 gallons of alcohol to be heated from 70° F. to 120° F. in one hour: 10 (gallons) x 7.4 (weight per gallon) x 50 (° F. rise) x .19 (watt-hours per pound per ° F.) equals 703 watts for heating the liquid.

To the watts required for heating the liquid should be added radiation losses as calculated below.

If objects are dipped into the liquid, determine the total weight of the material dipped per hour, its temperature rise, and add the heat absorption of these objects calculated on the basis of their weight per table No. 4.

Radiation Losses From Closed Tanks

Assuming three inches of good insulation on all surfaces of tank, the radiation losses will be .08 watts per degree Fahrenheit per square foot of exposed tank surface. (See table 7 for heat losses through insulated walls and savings effected by good heat insulation.)

FORMULA:—Temperature Differential between tank and room in degrees F. x square feet of tank area, x .08 equals watts radiation.

Add this to total watts required to heat material as calculated above.

Complete Wattage Requirements for Liquid Heating Applications include: Watts required to heat liquid, plus watts required to compensate for radiation from sides of tank and surface if open tank, plus Watts required to compensate for losses due to heat absorbed by any material dipped in the liquid, plus watts required to compensate for heat absorbed by container.

AIR HEATING

The convenient size, shape and construction of standard electric space heaters, makes them easily applicable to a wide variety of heating problems. Isolated rooms and buildings, portions of buildings, locations where no other heat will reach, can be heated conveniently and economically with electric heaters. They are also used for adding to inadequately heated rooms and for other unusual problems.

Calculation of the wattage required to heat any space must include the watts required to heat the air, heat absorbed by and lost thru the walls and heat lost through windows. The following data will be found valuable in calculating wattage requirements for many applications.

Assuming a required temperature rise of 70° F., with 12″ brick wall or equally good construction such as insulated double wood frame wall, total wattage required will be the sum of A, B and C as follows:

A = 0.35 watts per cu. ft. of room (to provide one complete change of air per hour).
B = 3.5 watts per sq. ft. of area of exposed walls, ceiling and floor.
C = 35.0 watts per sq. ft. of exposed window area.

For thinner brick or concrete walls or poor frame construction, some extra wattage must be added depending upon actual conditions, to compensate for greater heat losses.

EXAMPLE:—(All dimensions to be in feet).

Watts A = width x length x height x .35.

Watts B = (2 x width x height) + (2 x width x length) + (2 x height x length) — total window area) x 3.5

Watts C = Number of windows x width of windows x height of windows x 35.

Total watts required for 70° F. rise = A+B+C.

For higher temperature rise, multiply total watts by ratio between actual temperature rise and 70. For example, for 100° F. rise use $\frac{100}{70}$ x total watts as calculated above = final watts required.

Select the required number of standard 500 watt space heaters and mount them at advantageous locations throughout the room for uniform heat distribution. All heaters should be carefully mounted and connected, and if in an exposed location, they should be enclosed with a rigid screen or guard to prevent contact by persons or inflammable material. The heaters should preferably be mounted horizontally on edge and spaced at least 1¾″ apart.

Energy Required to Heat Air

Temperature rise in Degrees F.	Watts required per Cu. Ft. per Hr.	Temperature rise in Degrees F.	Watts required per Cu. Ft. per Hr.
70	.35	300	1.65
100	.55	400	2.20
200	1.10	500	2.75

USEFUL INFORMATION

DISCOUNT TABLE

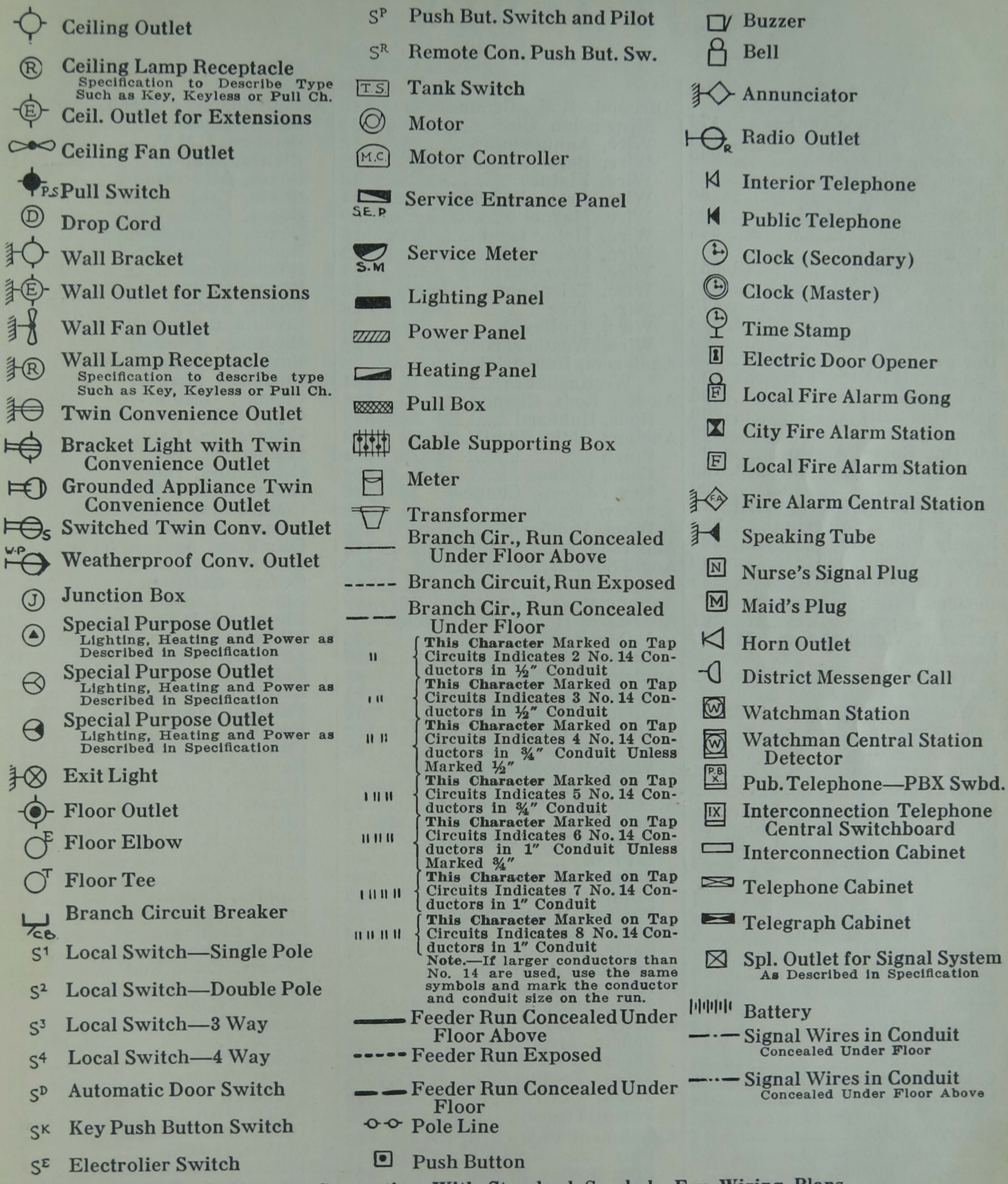
Given discount reduced to its decimal equivalent and also the remainder after subtracting the the decimal equivalent from unity 1.

Regardless of the rotation of discounts the net results are the same. Example: 50-10-20% is the same as 10-20-50%.

Discount	Decimal Equivalent	1.—Decimal Equivalent or the Multiplier	Discount	Decimal Equivalent	1.—Decimal Equivalent or the Multiplier	Discount	Decimal Equivalent	1.—Decimal Equivalent or the Multiplier
2½	.025	.975	40-10-6	.493	.507	50-15-10-5	.637	.363
5-2½	.074	.926	40-10-7½	.501	.499	50-15-10-5-5	.655	.345
5-5	.098	.902	40-10-7½-5	.525	.475	50-16⅔	.583	.417
10-2½	.123	.877	40-10-10	.514	.486	50-16⅔-5	.604	.396
10-5	.145	.855	40-10-10-5	.538	.462	50-20-5	.62	.38
10-5-2½	.167	.833	40-10-10-10	.563	.437	50-20-10	.64	.36
10-10	.19	.81	40-10-10-10-5	.584	.416	50-25	.625	.375
10-10-2½	.211	.789	40-10-12½	.528	.472	52½	.525	.475
10-10-5	.231	.769	40-10-16⅔	.55	.45	52½-10	.573	.427
10-10-5½	.2345	.7655	40-10-16⅔-5	.573	.427	52½-10-16⅔	.644	.356
10-10-7	.247	.753	40-12½	.475	.525	55-5	.573	.427
10-10-10	.271	.729	40-15	.49	.51	55-10	.595	.405
10-10-10-5	.308	.692	40-15-5	.515	.485	55-10-10	.636	.364
10-10-10-5-2½	.325	.675	40-16⅔	.50	.50	60-5	.62	.38
10-10-7-15	.359	.641	40-16⅔-5	.525	.475	60-5-5	.639	.361
10-10-10-10	.344	.656	42½	.425	.575	60-5-10	.658	.342
10-10-10-10-5	.377	.623	42½-10	.483	.517	60-10	.64	.36
10-10-10-10-10	.41	.59	42½-10-16⅔	.569	.431	60-10-5	.658	.342
12½	.125	.875	45-5	.478	.522	60-10-5-5	.675	.325
12½-2½	.147	.853	45-10	.505	.495	60-10-10	.676	.324
12½-5	.169	.831	45-10-5	.529	.471	60-10-10-5	.692	.308
12½-10	.213	.787	45-10-10	.555	.445	60-10-15-5	.71	.29
15-2½	.172	.828	45-10-10-5	.577	.423	60-15-5	.677	.323
15-5	.193	.807	45-10-10-10	.599	.401	60-20-5	.696	.304
15-10	.235	.765	45-10-10-10-5	.619	.381	60-20-15	.728	.272
15-10-5	.273	.727	45-10-12½	.567	.433	62½	.625	.375
15-10-10-5-5	.379	.621	45-10-16⅔	.588	.412	62½-5	.644	.356
16⅔	.1666	.8333	45-12½	.519	.481	62½-7	.651	.349
16⅔-5	.209	.791	45-15	.533	.467	62½-10	.663	.337
16⅔-5-2½	.229	.771	45-15-5	.556	.444	62½-10-5	.679	.321
16⅔-5-5	.248	.752	45-16⅔	.542	.458	62½-10-7	.687	.313
16⅔-10-2½	.269	.731	50-5	.525	.475	65-5	.668	.332
16⅔-10-5-2½	.306	.694	50-10	.55	.45	65-10	.685	.315
16⅔-10-5-5	.323	.677	50-10-5	.572	.428	66⅔	.6667	.3333
20-5	.24	.76	50-10-5-5	.594	.406	66⅔-5	.684	.316
20-10	.28	.72	50-10-10	.595	.405	66⅔-10	.701	.299
20-10-5	.316	.684	50-10-10-5	.615	.385	66⅔-10-5	.716	.284
25	.25	.75	50-10-10-5-5	.634	.366	67½	.675	.325
25-5	.288	.712	50-10-10-5-5-5	.653	.347	67½-10	.708	.292
25-10	.325	.675	50-10-10-7	.624	.376	70-5	.715	.285
25-10-5	.359	.641	50-10-10-7-15	.68	.32	70-10	.73	.27
30-5	.335	.665	50-10-10-10	.635	.365	70-10-5	.744	.256
30-10	.37	.63	50-10-10-10-5	.653	.347	70-10-10	.757	.243
30-10-5	.402	.598	50—4–10's	.672	.328	70-10-10-5	.769	.231
30-10-5-5	.432	.568	50—4–10's—5	.689	.311	70-10-10-10	.781	.219
30-10-5-5-5	.46	.54	50—5–10's	.705	.295	70-10-10-10-5	.792	.208
30-10-12½	.449	.551	50—5–10's—5	.72	.28	70—4–10's	.803	.197
30-10-12½-5	.477	.523	50—6–10's—	.735	.265	70—4–10's–5	.812	.188
30-12½	.388	.612	50—6–10's—5	.748	.252	70—5–10's	.822	.178
30-16⅔	.4167	.5833	50—6–10's-5-5	.76	.24	70—5–10's–5	.831	.169
30-16⅔-5	.446	.554	50—7–10's	.759	.241	70—6–10's	.84	.16
30-16⅔-10	.475	.525	50—7–10's—5	.772	.228	70—6–10's–5	.848	.152
30-16⅔-10-5	.502	.498	50—7–10's-5-5	.783	.217	80-5	.81	.19
32½	.325	.675	50—8–16's	.784	.216	80-10	.82	.18
32½-10	.393	.607	50-10-12½	.606	.394	80-10-5	.829	.171
32½-10-16⅔	.494	.506	50-10-15-5-5	.657	.343	80-10-10	.838	.162
33⅓	.3333	.6667	50-10-16⅔	.625	.375	80-10-10-5	.846	.154
33⅓-5	.367	.633	50-10-16⅔-5	.644	.356	85-5	.857	.143
33⅓-10	.401	.599	50-10-25	.663	.337	85-5-10-5-5	.883	.117
33⅓-10-5	.43	.57	50-10-25-5	.68	.32	85-10	.865	.135
35-5	.383	.617	50-10-25-10	.696	.304	87½	.875	.125
40-5	.43	.57	50-12½	.563	.437	87½-5	.882	.118
40-6	.436	.564	50-15	.575	.425	87½-5-10	.894	.106
40-10	.46	.54	50-15-5	.596	.404	87½-5-10-5	.899	.101
40-10-5	.487	.513	50-15-10	.618	.382	87½-5-10-5-5	.904	.096

USEFUL INFORMATION

STANDARD SYMBOLS FOR WIRING PLANS



Ceiling Outlet
Ceiling Lamp Receptacle Specification to Describe Type Such as Key, Keyless or Pull Ch.
Ceil. Outlet for Extensions
Ceiling Fan Outlet
Pull Switch
Drop Cord
Wall Bracket
Wall Outlet for Extensions
Wall Fan Outlet
Wall Lamp Receptacle Specification to describe type Such as Key, Keyless or Pull Ch.
Twin Convenience Outlet
Bracket Light with Twin Convenience Outlet
Grounded Appliance Twin Convenience Outlet
Switched Twin Conv. Outlet
Weatherproof Conv. Outlet
Junction Box
Special Purpose Outlet Lighting, Heating and Power as Described in Specification
Special Purpose Outlet Lighting, Heating and Power as Described in Specification
Special Purpose Outlet Lighting, Heating and Power as Described in Specification
Exit Light
Floor Outlet
Floor Elbow
Floor Tee
Branch Circuit Breaker
S^1 Local Switch—Single Pole
S^2 Local Switch—Double Pole
S^3 Local Switch—3 Way
S^4 Local Switch—4 Way
S^D Automatic Door Switch
S^K Key Push Button Switch
S^E Electrolier Switch

S^P Push But. Switch and Pilot
S^R Remote Con. Push But. Sw.
Tank Switch
Motor
Motor Controller
Service Entrance Panel
Service Meter
Lighting Panel
Power Panel
Heating Panel
Pull Box
Cable Supporting Box
Meter
Transformer
Branch Cir., Run Concealed Under Floor Above
----- Branch Circuit, Run Exposed
— — Branch Cir., Run Concealed Under Floor
II This Character Marked on Tap Circuits Indicates 2 No. 14 Conductors in ½" Conduit
I II This Character Marked on Tap Circuits Indicates 3 No. 14 Conductors in ½" Conduit
II II This Character Marked on Tap Circuits Indicates 4 No. 14 Conductors in ¾" Conduit Unless Marked ½"
I II II This Character Marked on Tap Circuits Indicates 5 No. 14 Conductors in ¾" Conduit
II II II This Character Marked on Tap Circuits Indicates 6 No. 14 Conductors in 1" Conduit Unless Marked ¾"
I II II II This Character Marked on Tap Circuits Indicates 7 No. 14 Conductors in 1" Conduit
II II II II This Character Marked on Tap Circuits Indicates 8 No. 14 Conductors in 1" Conduit
Note.—If larger conductors than No. 14 are used, use the same symbols and mark the conductor and conduit size on the run.
Feeder Run Concealed Under Floor Above
----- Feeder Run Exposed
Feeder Run Concealed Under Floor
Pole Line
Push Button

Buzzer
Bell
Annunciator
Radio Outlet
Interior Telephone
Public Telephone
Clock (Secondary)
Clock (Master)
Time Stamp
Electric Door Opener
Local Fire Alarm Gong
City Fire Alarm Station
Local Fire Alarm Station
Fire Alarm Central Station
Speaking Tube
Nurse's Signal Plug
Maid's Plug
Horn Outlet
District Messenger Call
Watchman Station
Watchman Central Station Detector
Pub. Telephone—PBX Swbd.
Interconnection Telephone Central Switchboard
Interconnection Cabinet
Telephone Cabinet
Telegraph Cabinet
Spl. Outlet for Signal System As Described in Specification
Battery
Signal Wires in Conduit Concealed Under Floor
Signal Wires in Conduit Concealed Under Floor Above

Suggestions In Connection With Standard Symbols For Wiring Plans

It is important that ample space be allowed for the installation of mains, feeders, branches and distribution panels.

It is desirable that a key to the symbols used accompany all plans.

If mains, feeders, branches and distribution panels are shown on the plans, it is desirable that they be designated by letters or numbers.

Heights of Center of Wall Outlets (unless otherwise specified)

Living Rooms	5′ 6″	Offices	6′ 0″
Chambers	5′ 0″	Corridors	6′ 3″

Height of Switches (unless otherwise specified): 4′ 0″

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